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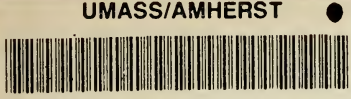
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WOODWARD'S

RECORD OF HORTICULTURE

FOR

1866.

EDITED BY

ANDREW S. FULLER,

AUTHOR OF THE FOREST TREE AND GRAPE CULTURIST.

NEW YORK:

GEO. E. & F. W. WOODWARD, 37 PARK ROW,

OFFICE OF THE HORTICULTURIST.

1867.

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PREFACE.

The public have an undoubted right to inquire for what particular purpose a book is written. The preface is supposed to give the desired answer, therefore we here give our prospectus.

We propose to publish in January of each year a volume in which we shall endeavor to show the actual state of Horticulture at that time, the principle Horticultural events of the preceding year, and any new developments that may have been discovered in regard to the more common fruits and flowers in cultivation. We do not propose to record the advent of every new fruit or flower, but only to give their merits or demerits after they are fully known. We shall endeavor to gather information from all parts of the country, and keep our readers informed as to which particular fruits and flowers are best suited for particular locations.

If horticulturists in general will give us their assistance, and communicate any facts in their possession relative to Horticultural products, it will very materially assist us in making this annual a guide for the inexperienced as well as for those who possess a general knowledge of the subject. The present volume has been rather hastily written, owing to the fact that it was near the close of the year before we determined to publish it. With this explanation we offer this, the first number of our Record of Horticulture.

The Editor.

MAR 10 1939

RECORD OF HORTICULTURE.

I.

NEW BOOKS.

THERE is probably no better method of estimating our progress in Horticulture than by examining the various books that are published upon the subject. Our horticultural journals are certainly an index of what is being done, as well as great promotors of the science; still, while we acknowledge their importance, it must be borne in mind that many of them, mirror-like, reflect whatever is brought before them, whether it be that which elevates and promotes the cause, or that which checks the ardor of its votaries. In journalism, we look for the great thoughts of mature minds in company with the jinglings of thoughtless scribblers.

Books *should* be the concentrations of best thoughts, the results of a fixed purpose to do good by advancing that branch of science to which they are devoted. A book may be fictitious, dealing entirely with the imaginary, still it can be truthful. No theories will be accepted at the present day, no matter upon what subject they may be advanced, unless they can be demonstrated. Assertions have become unpopular; truths only are in vogue with all thinking people.

The books issued during the past year are sufficiently

numerous to indicate great progress, and their sale shows that there is an increasing desire among our people to obtain whatever knowledge there is upon the subject, but it is at least questionable whether Horticulture has been benefited in proportion to the number of books disseminated. If a book is merely a re-issue of undemonstrated or exploded theories, with lists of superseded varieties of fruits and flowers, then it is of little or no benefit to Horticulture. While on the other hand it may not contain anything new and still be useful—for it may be a re-clothing of well-known principles, and if dressed in a more attractive attire it will be sought for and be read with benefit. We do not expect every new book to be an embodiment of entirely new thoughts, principles, facts, or theories, still we have a right to demand that it shall be different in some respect from any of its predecessors.

Agriculture and Horticulture appear to have suddenly become very popular with our book publishers, for we can scarcely find a catalogue of any of our larger publishing houses that does not contain a list, more or less extensive, of works on these subjects. This fact is certainly complimentary to the cultivators of the soil, as it clearly indicates that we are rapidly becoming a reading people, and that intellect and muscle are not so great strangers as they have been in years past.

We fear, however, that some of our publishers, in their eagerness to have a long list of their *own* publications, employ men to write books who have no practical knowledge of the subject upon which they discourse. This is to be regretted, inasmuch as it is by the practice of science

we are benefited. The two classes of writers most to be feared are those who have much to say theoretically, but nothing practically, and those who have nothing of their own to say, either theoretically or practically, but think it their duty or privilege to make a book if they can get a publisher to pay them for that which they purloin from others.

We have a good example of the latter class in a book lately issued by Lee & Shepard, of Boston, which bears the very inappropriate title of "Practical and Scientific Fruit Culture," by Charles R. Baker, of the Dorchester Nurseries. The author or compiler of this work evidently thought that having walked in the shadow of a great man's umbrella he was entitled to a portion of his mantle. The work is but little more than a compilation of essays and extracts from various authors, with the list of fruits adopted by the American Pomological Society. The greater portion of the matter collected in this work is valuable and familiar to reading men, but what right Mr. Baker has to use the immense labors of others, to the extent which has been done in this work, is a question that the good public will decide. Mr. Baker for once has made a great mistake, which he should rectify so soon as he has had sufficient experience to give him the practical information necessary to enable him to write a work of his own.

Cultivation of the Grape. By W. C. Strong. Boston: Tilton & Co. 12mo.; 355 pp; muslin, $3 00.

Mr. Strong begins with Adam, and leads us along the misty way down to the present time. He makes copious

extracts from the old authors, with an occasional one from those of modern times. There is no particular system of cultivation or training advocated; the author evidently believes that the American public have become fully posted on these points. Really the great fault of this book is its want of such positive working directions, that the novice might take it up and follow it to the letter, having every step from the cutting to the full-fruiting vine plainly described. The work is got up in Tilton & Co.'s splendid style, and notwithstanding its defects is well worthy of a perusal by those interested in this branch of Horticulture.

Garden Vegetables. By FEARING BURR. Boston: Tilton & Co. 12mo; 355 pp; muslin, $2 50.

Mr. Burr in this work has given just enough science for all practical purposes, and no more. His recommendations as to soils and cultivation are plain, simple, common sense, just what the cultivation of vegetables require. It is well written, superbly illustrated, and one of the best—if not the very best—works upon the subject in the English language. It is to be hoped that both the author and publishers will be well repaid for giving the public so good a book as "Garden Vegetables."

Grapes and Wine. The Cultivation of the Native Grape and Manufacture of American Wines. Illustrated. By GEORGE HUSMANN. New York: Geo. E. & F. W. Woodward. 12mo; 192 pp.; muslin, $1 50.

If Mr. Strong's work is deficient in positiveness, we certainly find it in abundance in this book. Mr. Husmann has had much experience in grape culture, and he writes as

though he was certain that his mode of cultivation, training, and making wine was as near perfect, for his section of the country—Missouri—as any that has been discovered. Mr. Husmann has been very successful, which is the best proof he could have given us that his method is a good one; this certainly will cause the work to be appreciated by all Western vineyardists, and probably by many at the East and South. It is practical throughout, and just what we might expect from a man of experience. The chapter on wine-making will be particularly acceptable to new beginners everywhere.

We think the tables of statistics are a little overdrawn, the estimate of cost of preparing the soil, planting, training, etc., is too low, and the returns too high. Besides, we object to the counting in of vines propagated and sold with the products of grape culture. It is not everywhere that men can sell all the vines they may grow from cuttings and layers, and at such prices as Mr. Husmann names. Grape culture and grapevine culture should be kept distinct in making up returns of profits. There is another item which should be deducted from the sum total of the profits on wine, that is the government tax; perhaps Uncle Sam's collectors have not yet reached Missouri, as we do not see his assessments named in the tables.

Mr. Husmann is a nurseryman, and can probably sell all the vines he propagates at a remunerative price; in this he has an advantage over many other vineyardists. If we take out the amount received from the sale of vines, we will find the profits materially lessened. For instance, on page 182 we find the returns given from two and a half

acres of vines $8,848 60 as the total receipts for four years, but by picking out the items, there is but $809 60 received for fruit, the balance—$8,039—was received for vines. The cost of the vineyard was $1,377 56; now, if he had not propagated vines for sale, would his grape culture have been called a success? This is a little too much like "Our Farm at Edgewood," in which the author claims to show that *farming* is profitable, because in a location favorable for selling milk he makes money by keeping cows.

In describing the different varieties of grapes, Mr. Husmann evidently does not entertain the idea that it is possible for him to be mistaken. There are, however, older, if not more able, men who think he is incorrect in a few instances. His references and purported quotations from other works are in some instances quite amusing. We give two of them as examples:

"PERKINS.—*Husmann*, p. 113.—Mr. Fuller has evidently not the true variety, as he describes it as a 'black grape, sour and worthless.'"

"PERKINS.—*Fuller*, p. 237.—One of the varieties received under this name has proved to be the Isabella; and the other is a small, black, fox grape of no value."

"RULANDER.—*Husmann*, p. 109.—Mr. Fuller evidently does not know this grape, as he says it is the same as the Logan."

"RULANDER.—*Fuller*, p. 237.—There may be a distinct variety by this name, but the one I have received is the Logan."

The above quotations from both authors will illustrate the manner in which errors are promulgated. It is to be

hoped that when Mr. Husmann again attempts to give the words of another, he will quote him correctly.

The Book of Roses. By FRANCIS PARKMAN. Boston: Tilton & Co. 12mo; 225 pp.; muslin, $3 00.

The first hundred pages of this work contain an excellent practical digest of rose culture; full of good suggestions upon culture, diseases, and methods of propagation. Illustrations are entirely ignored, which is a great oversight in both author and publishers. Even a few cheap wood-cuts would have added much value to the work, and given the novice more information than many pages of descriptive matter. Words may explain, but engravings are like facts—they make impressions upon the memory that are not readily effaced. The remaining portion of the book is little more than a descriptive catalogue, which is of doubtful value to the experienced rose-grower, and of less to the amateur. There is really too much of a good thing, and we become surfeited with the appalling list of choice, beautiful, and admirable queens of the garden. The "Book of Roses" has no equal, and will doubtless have a large sale, as it is really worthy of it, even with its defects. It is printed on fine paper, and the typography and general make-up are really superb.

Bulbs. A Treatise on Hardy and Tender Bulbs and Tubers. By EDWARD SPRAGUE RAND. Boston: Tilton & Co. 12mo; 306 pp.; muslin, $3 00.

The cultivation of bulbous and tuberous-rooted ornamental plants has been constantly increasing in this country for several years, and this work of Mr. Rand will

materially assist in their cultivation, as it is full of practical information, besides giving a very good description of nearly all the known species and varieties. The author could advantageously have given more explicit directions in propagation, especially of the Lily, which is now attracting so much attention. Also a description of the newer varieties. But upon the whole it is the best treatise on the subject published in this country.

Garden Flowers. How to Cultivate Them. By E. S. RAND. Boston: Tilton & Co. 12mo; 384 pp.; muslin, $3 00.

We regret the necessity which compels us to say that this work is not worthy of the author. It is a botanical list of trees and plants with the botany left out. The practical part is very deficient, as only general rules are given. There are many errors in the botanical names, especially in reference to our native plants, which is scarcely excusable while Mr. Rand has one of the most noted living botanists—Dr. Gray—for his neighbor. For instance, Virgilia lutea is now called Cladrastis tinctoria, (see Gray). Washingtonia gigantea, the great tree of California, is Sequoia gigantea, and never was called Washingtonia by any botanist of note. Similar errors are abundant throughout the work, and they detract very much from the usefulness of the book as a botanical list, if nothing more. Another serious error is—the author continually confounds varieties with species, making no line of demarkation. This work of Mr. Rand is the least valuable one he has given us, and will be of but little service to those who have the "Cottage Gardener's Dictionary."

Miniature Fruit Garden. By THOMAS RIVERS Reprinted from the latest English edition. New York: O. JUDD & Co. 12mo; 133 pp; muslin, $1 25.

Mr. Rivers is one of the veterans in Horticulture, and his works have a world-wide reputation. The public are very much indebted to the publishers for giving the American people an opportunity of obtaining this work of Mr. Rivers' in such an elegant dress, and at so moderate a price.

New Book of Flowers. By JOSEPH BRECK. New York: O. JUDD & Co. 12mo; 480 pp.; muslin, $1 75.

This is a revised edition of one of our old standard books; or perhaps the word revised is not explicit enough, for the work has been almost entirely re-written, bringing it down to the present time. It is a first-rate work in every respect, and deserves a large sale.

The Garden. A Manual of Practical Horticulture. Illustrations. By D. H. JACQUES. New York: Geo. E. & F. W. Woodward. 12mo; 166 pp.; muslin, $1 00.

This is one of a series of works issued several years since by Fowler & Wells, new editions of which have been lately published by the Woodwards. Mr. Jacques is a very clear writer, and has collected many interesting facts relating to the subject on which he discoursed. "The Garden" is a good practical work, but should be revised, and the new fruits of the past five years added to the lists.

The Forest Tree Culturist. Illustrations By ANDREW S. FULLER. New York: Geo. E. & F. W. Woodward. 12mo; 188 pp.; muslin, $1 50.

A plain, practical treatise on the cultivation and propagation of native forest trees. It is an essay addressed to

the farmers of America, in which the author has endeavored to show them the importance of preserving the forests which they now possess, as well as to furnish them with directions for raising new ones. No farmer or landowner should be without a copy.

Peat and its Uses. By SAMUEL JOHNSON, A.M. New York: O. JUDD & Co. 12mo; 168 pp.; muslin, $1 25.

Although this is not a horticultural work, still the importance of peat as a fertilizer must be apparent to every horticulturist in our country, consequently it is as valuable to them as to any other class of cultivators. This book tells the whole story, treats the subject practically and scientifically, and is the very best treatise ever published on the subject. If there are not one hundred thousand copies of this book sold within the next year, the American people do not know nor study their own interest.

American Gardener's Assistant. By THOMAS BRIDGEMAN. New Edition, revised and enlarged, by S. EDWARD TODD. New York: William Wood & Co. 12mo; 530 pp.; muslin, $2 50.

This work purports to be a revised and enlarged edition of an old and very good work in its time. We discover in the present edition an attempt at revision and additions, but it falls so far short of what it should be, that it is little better than a caricature of the original. If we refer to Part I., which treats of vegetables, we will find few of our most valuable kinds mentioned, and almost any of our seedsmen's catalogues, which may be had for the asking, are better guides than this voluminous treatise. None of the new or old varieties of rhubarb, tomatoes, peas, pump-

kins, squashes, etc., are named. Part II. is supposed to give some information about the cultivation and varieties of fruits, but it is a quarter of a century behind the times; and we can not but think that the editor either belongs to some past generation, or is so indifferent to the wants of the public that he would not look into any work of the present day. Occasionally a wood-cut of some new or old fruit is thrown in by way of illustration, and we give the publisher credit for them, as the editor seldom refers to these illustrations in the text. Figures of the Cherry Currant and Houghton Gooseberry are given, but there is no reference to them in the list of varieties. A long list of foreign varieties of the gooseberry is given, but our native sorts are entirely ignored. The list of strawberries and raspberries are on a par with the rest; we are, however, informed that a certain nurseryman at Flushing, N. Y., has the queen of raspberries for sale, at 25 cents per plant. The list of grapes recommended is certainly very unique as well as select, as neither the Delaware, Concord, Iona, Diana, nor, in fact, any of the superior varieties introduced within the last twenty-five years, are named. Several illustrations are given to indicate how grapes are to be trained, the said illustrations being appropriated from other works with a coolness only equaled by the silence of Mr. Todd in regard to their peculiar merits. But it is useless to name farther omissions and defects, as the above is a fair index to the whole.

This may seem to be severe criticism, still we believe that every horticulturist in our country feels a certain pride in the good name of every departed member of the pro-

fession; and as the late Thomas Bridgeman was an intelligent and much respected man, and as the original work was a credit and honor to the author, we can not help feeling chagrined that his good name should be tarnished by this work, which is so inferior to what the author would have made it if he had lived to superintend its revision. Aside from this, we regret that so much expense should have been incurred by one of our old and respectable publishing houses to produce such an inferior work.

The American Journal of Horticulture and Florist's Companion. Boston: Tilton & Co. Price $3 00 a year.

A new journal of Horticulture, the first number being dated the 1st of January, 1867. We are promised a journal that shall be above all sectionalism, individual puffery, or toadyism to any particular person or persons, and we hail the announcement with delight. There is no reason why we should not have one or more first-class horticultural journals; there is certainly talent enough to furnish the materials, and wealth enough among the people who take an interest in such pursuits to support them. The Tiltons will certainly do their part as publishers, as the first number indicates, and it only remains with horticulturists generally to see that their efforts meet with a corresponding liberality.

The true horticulturists of America should (if they do not) lay aside all jealousy and personal feelings, and work together for the advancement of the greatest and most important science of the day—a science that blesses and elevates every one who studies it with a true heart, for it brings

us in close proximity to the Author of all good—the Creator of the beautiful as well as useful. Write for the horticultural press, do it practically, truthfully, and with but one object in view, *i. e.*, the benefit of your fellow-beings.

The Practical Entomologist. A Monthly Bulletin. Published at 518 South Thirteenth Street, Philadelphia. Price 50 cts. a year.

The first volume of this very excellent work closed on September 1st, 1866, therefore it may with propriety be called a new publication of the year.

The importance of disseminating practical knowledge in regard to the insects injurious or beneficial to the agriculturist and horticulturist no one for a moment will question. The "Practical Entomologist" appears to be just the work needed to advance the science to which it is devoted. No such work has ever before appeared in this country, and the publishing committee and editors are entitled to the thanks of the public at large and a generous support. At the very low price at which it is published, 50 cts. a year, the editors certainly can not receive any pecuniary reward for their labors, unless the masses who are, or ought to be, interested, come forward and lend their assistance to swell the subscription list. The publishers ask for only 5,000 subscribers for this year; this is certainly a very small number for a magazine devoted to such an important subject as Entomology. If the people could be made to understand their own interest, it would have fifty or one hundred thousand subscribers before the close of 1867. With such support the publishers could afford to increase its size and give accurate and expensive illustrations whenever required.

II.

REVIEW OF HORTICULTURE.

The rise of Horticulture in America is so recent, and its progress has been so rapid and brief, that one can scarcely realize how a business of such vast proportions could have been established in so short a time. It is true that the foundation was laid many years since—for at the beginning of the present century Horticulture had become a feature of American industry. The means, however, of disseminating knowledge upon the subject were of a very primitive character. Fifty years ago, the few books in circulation were mainly of European origin; these, with an occasional article in the newspapers of the day, constituted the entire horticultural literature of America; and it is but little more than thirty years since Horticulture commenced its rapid strides toward its present prominent position.

Among the veterans who are still with us, and who have for many years ably and earnestly assisted in disseminating useful information upon the subject, as well as introducing and growing many of our best fruits and flowers, we have Wilder, Downing, Buist, Breck, Kenrick, Hovey, Barry, Warder, Kirtland, the brothers Feast, I. Buchanan, G. Graham, J. J. Thomas, and several others, who were the pillars of the structure long before the science of Horticulture had reached anything approximating its present proportions. These men are still in the ranks, aiding us with

their counsel and experience, for which every younger and less experienced member of the fraternity should be truly grateful.

In horticultural literature there has been great improvement within the last few years, not so much as we could desire, but sufficient to indicate considerable progress. Hovey's *Magazine of Horticulture* is the only living representative of its kind that dates more than thirty years ago. Several others have been started since that time, but only two out of the number have survived until the present day. *The Horticulturist*, commenced by the much lamented A. J. Downing, in 1846, and the *Gardener's Monthly*, started in 1859, complete the list, with the exception of the *American Journal of Horticulture*, the first number of which is dated January 1st, 1867.

Although our horticultural journals are not very numerous, their efficiency has more than made up for any lack in numbers. But we have not been entirely dependent upon them for the dissemination of knowledge upon this subject, as there are many other periodicals, devoted principally to Agriculture and other rural topics, that have contributed immensely to the general fund of information. Among the most prominent of these are the *American Agriculturist*, New York; *Rural New Yorker*, Rochester, N. Y.; *American Farmer*, Rochester, N. Y.; *Working Farmer*, New York; *American Farmer*, Baltimore, Md.; *Rural World*, St. Louis, Mo.; *The New York Tribune*, New York; *Germantown Telegraph*, Germantown, Pa.; *Maine Farmer*, Augusta, Me.; *Prairie Farmer*, Chicago, Ill.; *The Country Gentleman* and *The*

Cultivator, Albany, N. Y.; *Iowa Farmer*, Mt. Pleasant, Iowa; *Wisconsin Farmer*, Madison, Wis.; *California Farmer*, San Francisco, Cal.; *Southern Cultivator*, Athens, Ga.; *Boston Cultivator*, Boston, Mass.; *Richmond Farmer*, Richmond, Va.; *New England Farmer*, Boston, Mass.; *Ohio Farmer*, Cleveland, O.; and many others of similar character that have aided in the advancement of the cause. With such an array of assistants, conducted with so much ability, it would indeed be very strange if Horticulture did not make rapid progress.

BOOKS ON HORTICULTURE.

Authors who had made any particular branch of science their study formerly, gave their ideas and discoveries to the public in book form. When these had awakened the public mind to the value and importance of the subject, periodicals stepped in and became the vehicles by which the new facts and discoveries were conveyed to the public as they were gradually developed.

To afford a more distinct comparison between the early days of American Horticulture and the present, let us glance back a century and examine its condition at that period. In 1755, William Belgrove, of Boston, Mass., wrote and published a "Treatise on Husbandry and Planting." This work contains eighty-six pages. From that time to 1800 not more than three or four works appeared, and from 1800 to 1820 probably ten or twelve more, among which were McMahon's "American Gardener's Kalendar," David Hossack's "Hortus Elgensis," and William Coxe's admirable little work on the "Cultivation and Manage-

ment of Fruit Trees." About this time considerable attention was being given to the cultivation of the grape, and several works appeared upon the subject between 1820 and 1830. In 1823, John Adlum, of Washington, D. C., published his "Memoir on the Cultivation of the Vine;" James Dufour, of Vevay, Indiana, wrote "The Vine-Dressers' Guide" in 1826; it was published at Cincinnati, Ohio. In 1827, Alphonse Loubat, wrote the "American Vine-Dressers' Guide," printed at 22 Wall Street, New York. Loubat planted a vineyard of foreign varieties on the shore of Gowanus Bay, Long Island. Here he strove against mildew and sun-scald for several years, but had to yield at last, as the elements were too much for human exertions to overcome. An old resident of Brooklyn related to the writer, a few years since, many incidents connected with Loubat's experiments; one of which was, that to prevent mildew on the fruit, each bunch was enveloped in paper; consequently they had to be uncovered when exhibited to visitors. This, when the grapes were ripening, consumed most of Loubat's time. In 1828, '29, and '30 several works appeared on this and kindred subjects.

This brings us down to the beginning of a new epoch in American Horticulture, and from this time forward books appeared in rapid succession, until one can obtain quite an extensive library of works upon the subject published in this country.

NURSERIES.

Twenty-five years ago there were very few nurseries in the United States, and these were most of them located near the large cities in the Atlantic States. The most ex-

tensive of them was scarcely equal to the second or third-rate ones of the present day. Now we have more than a thousand, scattered over the country from the Atlantic to the Pacific Ocean. That they are nearly all in a prosperous condition, we infer from the fact that a failure is seldom announced. There have always been a few individuals who prophesied that the business would be overdone, yet nurseries have increased almost a thousand-fold in the past twenty years, and still the prediction has not been fulfilled. The truth is, that our country is too vast in extent, and the population increasing too rapidly, to be overstocked with trees and plants.

Our cheap lands and equitable laws offer great inducements to the poor and oppressed of the Old World, and so long as these advantages exist, immigration will continue, and thousands of new homes will be made yearly, each of which will require a supply of fruits and flowers.

Old varieties are being superseded by new ones, the inferior is being discarded to make room for the superior, and generally for every plant thrown away, two are planted. All this creates a demand, and nurseries are constantly being established for the purpose of producing the requisite supply.

The size of some of our larger nurseries is unequaled in any other country on the globe. A few years since a nursery that covered twenty-five acres was considered very extensive, but now we have many covering from two hundred to five hundred acres, and yet they are unable to keep up a sufficient stock of the various trees and plants wanted to supply the demand.

It is not only those who are usually termed nurserymen that show great advancement and prosperity, but their co-laborers, the seedsmen and florists, are equally successful. There are probably, at the present time, more acres covered with glass for the purpose of producing flowering plants than there was open ground devoted to this branch ten years ago. We could name several florists who not many years since were quite content with two or three city lots and one small green-house, that can now count their glass roofs by the acre, and still they complain bitterly of the want of room. The same progress is apparent with seedsmen; acre after acre is annually added, until, as in the case of David Landreth & Son, over six hundred acres are entirely devoted to the growing of seeds by one firm.

In addition to the untold millions of trees and plants and tons of seeds produced at home, we import ship-loads every year from abroad. It may be asked how the people obtain information as to where the trees, plants, and seeds can be had, and how to cultivate them when obtained. Our books and periodicals of the day furnish, in a great part, the needful instructions; but there is another medium that we fear receives very little if any credit—even when it is not entirely overlooked. We refer to the periodical catalogues of seedsmen, nurserymen, and florists. A rivalry appears to exist among the proprietors of the various establishments as to who shall issue the best, or nearest perfect catalogue. The result, as might be expected, is that many of them are condensed cyclopedias, giving not only complete and correct lists of the articles offered, but full descriptions and modes of cultivation.

Many of the catalogues issued during the past few years would have been formerly considered books worthy of a place in the most select library.

These treatises, for such many of them really are, when scattered broadcast over the land, often fall into the hands of those who need just such aids and hints to develop a latent taste for horticultural pursuits. The result may be seen in the many beautiful flower-gardens, orchards, vineyards, and small fruit farms now so rapidly multiplying throughout our farming districts. These catalogues, as a natural consequence, form a nucleus for what eventually becomes a horticultural library. Who can tell how many fruit farms owe their existence to a single catalogue given to some enterprising youth? Many a fine garden and orchard have been produced solely from the instructions derived from one of these nursery advertisements. They may be considered by some as "light literature;" but so long as they contain the germ from which grow such really good results, we ought not to censure their authors too severely if now and then we find botanical errors and egotistical self-laudations mingled with the valuable information which they convey to the general public.

FRUIT-GROWING.

The legitimate results of the nursery business is that of fruit-growing. Passing from one to the other is so easy and natural, that it is no wonder that many of our nurserymen, after devoting a few years to producing plants for sale, retire as it were and give their energies to the growing of fruit for market.

Plant-growers often feel a peculiar fondness for their plants, and so strong does this attachment become, that they would rather lose their intrinsic value than let them pass from their care. Such feelings are the natural products of that insatiable desire so general in mankind to know and realize the full development and results of their labors. This is particularly the case with those who grow fruit-bearing plants, especially such as require several years to come into bearing. And when this time arrives, it is often found that a single crop is of more value than a number of the trees when at a salable size. Specimen grounds in nurseries are constantly enlarging, until the income from the sale of fruit is often sufficient to satisfy the aspiration of the proprietor; consequently he relinquishes other departments and becomes only a fruit-grower. It is no uncommon thing at the present time for individuals to own fruit farms of a hundred acres, and there are a few much larger. Even with the small fruits, such as are of very recent introduction, there are several plantations of from fifty to one hundred acres. These fruit farms are not located exclusively in the Eastern States, as in former times, but they may be found near all of our larger cities, from the Atlantic to the Mississippi, and even west of that. The sum total of the amount received from the sale of fruit in the United States would be an item worthy of being placed on the records of our financial history.

Our American people appear to have full faith in the old adage, "in union there is strength." The idea has become a national one; the results have been so satisfactory, that the principle is being applied to nearly every department

of industry. In the last few years it has been prominently introduced into Horticulture by the formation of numerous large corporations who propose to grow fruit on a scale far more extensive than any heretofore attempted. That a majority of their enterprises will be successful there is scarcely a doubt, for with sufficient capital and perseverance, which most of them possess, failure is hardly possible.

Among the many enterprises lately inaugurated we mention the following, as they are indicative of what is being done by capitalists toward supplying our market with fruits and their products:

In southern New Jersey there are several large companies formed for the purpose of growing cranberries. At Elwood, the Atlantic Company has purchased 1,000 acres, which it is rapidly planting with this fruit. Individuals have also a hundred or more acres planted. At Manchester, N. J., another company is planting largely of this fruit; many acres are at this place now producing fruit. At Hammonton, Vineland, and other places, the same activity is being shown with other fruits, as well as with the cranberry. When we take into consideration that a few years ago this entire region was almost destitute of habitation, its productions at the present time are truly marvelous. In the State of New York several large companies have been formed for the manufacture of wine. The Urbana Company is organized with a capital of $250,000; there are several other smaller companies with capitals of from $10,000 and upward. In Ohio, Missouri, and other Western States the same activity and combination are seen. Near St. Louis, Mo., a company has purchased 10,000 acres

for the purpose of growing grapes. Samuel Miller, of Avon, Pa., who has had much experience in grape culture, has been chosen director of the enterprise. Dr. Trall & Co., of New York, have lately purchased a tract of 10,000 acres in Ross County, Ohio, for the purpose of fruit-growing. The place is to be called Hygeana, and it is intended that the hygienic principles shall be carried out to the fullest extent; no animals are to be raised or used for the purpose of food. Enterprises similar to those named are in progress in all parts of the country.

Do not all these indications clearly show that Horticulture is rapidly becoming a source of great national wealth, besides furnishing innumerable blessings to all classes of society? These combinations should not, however, deter individuals from planting on a smaller scale. The profits of companies may, and probably will, if properly managed, be large, but they must be divided among the many stockholders; while the profits attendant upon less extensive operations are not subject to such divisions, and experience has shown them to be sufficient to satisfy any reasonable man.

III.

WOMEN IN HORTICULTURE.

Is Horticulture a suitable occupation for women? Is there anything degrading in the cultivation of fruits and flowers? We are told in sacred history that the first gardener had a woman given him for a helpmate and partner; then why should we not only admit, but encourage women to assist in producing those blessings that our Creator in his beneficence has given to *mankind?* We have some excuse for not urging women to engage in general agriculture, for besides needing strength in that position, she would come in contact with many things repugnant to the finer feelings of her nature. But in Horticulture she would seldom meet with anything distasteful. True, we would not ask or expect her to do the coarse drudgery of the business, leaving that for such men as seem to have been created to be hewers of wood and drawers of water, and whose tastes and aspirations are but little above those of animals. But what could be more agreeable to refined tastes than to cultivate and handle our ordinary fruits, especially the smaller kinds? Is it less noble than sitting idle, or waiting upon customers in some close, half-stifling shop in a city, or plying the needle for sixteen hours a day, for scarcely enough to keep soul and body as partners for a few years, with no time for relaxation from toil or to enjoy the exhilarating pleasure of breathing the free air of the country?

Fashion, the tyrant, and the near relative of Want, has excluded woman from many channels of usefulness, and often compelled her to walk the downward road to degradation. Shall these influences continue to exist when her labor and society are needed in many positions of life where at present she is seldom admitted? Would not the very presence of women in horticultural society be a benefit to the profession? for *out of respect for the ladies* some of us would be more gentlemanly in our deportment, and more civil in all of our dealings with each other. We think that it would have this desirable effect, at least it is well worthy of trial.

This is no insignificant subject, nor one that should be passed with indifference. We do not wish to harp upon the already much abused subject of women's rights or wrongs, but we respectfully submit these remarks in behalf of the general welfare and progress of Horticulture. If our mothers and sisters are so fortunate as to have been born in or raised to a position of comparative freedom from manual labor, we should not forget those who are not so well situated, but endeavor to find or make employments that while they furnish the means of subsistence will be the less arduous because of their congeniality.

Our government has liberally endowed the prospective agricultural colleges of our country for the education of men; would it not have been well to give a portion to the endowment of horticultural departments for the education of both sexes? Must the mothers of great men, yes, of nations, be circumscribed in their usefulness, and be compelled to walk in channels unsuitable to their proper development

because of fashion or false education of both their own and the ruling sex? Thousands of women, old and young, are now crowded into our cities who would gladly seek employment in the fruitful fields of the country if they could be assured that the finger of scorn would not be pointed at them.

We all honor a Mrs. Loudon who did not think it beneath her dignity to prosecute the work her much lamented husband had begun. There are a few such noble examples in Horticulture, and we have to regret that the record contains so small a number. At the time Mr. Loudon published his "Encyclopedia of Gardening," there had been about four hundred authors of works on gardening in England; out of this number only five were women. We do not doubt they had given assistance in many instances for which they have received no credit.

We are glad to record the fact, that within the past year one lady has announced herself as a member of the horticultural profession. We refer to Miss J. L. Waring, of Amenia, Dutchess County, N. Y.

Miss Waring has built four large propagating-houses, which cost nearly $10,000, besides purchasing ample grounds for carrying on an extensive business. The propagation of grapes has been the main business the past season, and we believe her success has been excellent. From a very slight personal acquaintance with this lady, we do not hesitate, in behalf of horticulturists in general, to welcome her among us, believing that she will be an honor to the profession and of benefit to the country at large.

IV.

MEN IN HORTICULTURE.

Since Horticulture was first known to the world as a profession or science, men of every grade and standing in society have been its devotees. Probably in a moral point of view they have been equal as a whole to those following any other calling, but the question may be asked, Is this enough? Ought not those who make a profession of developing the beautiful and useful in the vegetable kingdom to possess higher aspirations and more noble ideas than those who deal only with the inanimate materials of the universe? The horticulturist is placed in close contact with the beautiful in nature, and he may reach down toward the unfathomable depths and be assured that nature has fields beyond his vision, adorned with animate beings and with beauty equal to those through which he has already traveled.

When the microscope fails us, we close our labors in that direction and retrace our steps, noticing the beauties of the cryptogamous plants as we pass along, admiring the wondrous structure of lichens and ferns, thence to the more useful grasses and forage plants, up through the herbaceous and shrubby, until we reach the trees, where standing before the giant Sequoia we are appalled at its stupendous magnificence. Ought not these examples of Divine Wisdom to bring out and develop the best and

highest attributes of our nature? Surely no true lover of Horticulture was ever degraded by his profession. But truth compels us to admit, that all who claim to be devotees of Horticulture are not so in the full meaning of the term.

Money, that great motive power which debases more than it elevates, has its influence in Horticulture as well as in all other branches of trade and commerce. Men devoid of principle have discovered that money could be made in horticultural pursuits, and they have not been slow to embrace the opportunity to make it. Others, who have spent an ordinary lifetime in other professions that have not been congenial to their health or reputation, have turned their attention to Horticulture in the hope of improving a broken constitution or a damaged character acquired in their former occupations.

We would not be understood to make a general accusation—far from it, for there are many gentlemen, in the full sense of the term, who have joined, late in life, the horticultural ranks. Still, we think it will be generally admitted by those who are acquainted with the fraternity at large, that there are a few in the ranks who ought not to be recognized, except to be politely invited to leave. Neither would we assume that all who have been in the business through their lives are worthy of the calling they profess.

The question as to how these abuses can be rectified is one very difficult to answer, yet we may suggest that much can be done by the horticultural press. They are our monitors, and possess a power which, if wielded in the

right direction, is sure to accomplish the purpose. That they have already done a great work, and in many instances compelled knavery to hide his head, we all admit; still, we can not but urge them to greater vigilance in the future, not by out-spoken condemnations of individuals, but of their acts when not in accordance with honesty and fair-dealing. They can uphold those whom they know to be gentlemen and worthy of praise, and severely let alone those whose reputation is doubtful. We need not point out the particular manner in which this may be done, for it will suggest itself to the editors. All that we ask is, that honesty shall be supported and dishonesty condemned.

V.

GRAPE CULTURE.

The past year has been one of the most severe upon the grape known for a long time. The winter of 1865 and '66 was very cold, and destroyed many kinds that had been heretofore considered hardy. Mildew followed in the summer, and at the East was very destructive in many sections. There was also a late spring frost in some places, which entirely destroyed the crop. Add to this, an early frost in autumn, which injured the crop of quite a number of vineyards, and we certainly have misfortunes enough for one season. Still, with all this devastation to contend with, grapes have been quite abundant in our markets. Our country is so large, and grape culture has become so widely extended, that nothing less than a general deluge can cause a complete failure.

Grape culture may now be said to have become a fact in America—it is one of its institutions, and a permanent branch of home industry. The ephemeral or mania-like appearance which it assumed a few years since has passed away, and cultivators begin to understand which are the most profitable varieties. Probably the day of fancy prices for new and untried varieties is past, and originators of new kinds will have to show facts, as well as assert them, before the masses will contribute to fill their pockets in return for their new and untried bantlings.

There has been much complaint of slow sales among the propagators of new fancy varieties, but this does not show that grape culture is on the decline, but it only indicates that the masses have learned not to purchase largely of any variety until it has proved to be worthy of cultivation. There will probably be many new varieties brought out every year; these will be purchased sparingly and with caution, for that fever-heat which has afflicted the people for the last five years has passed away. We may expect in the future to see vineyards planted with the same assurance and confidence that we do apple and pear orchards, and with the same remunerative results. All this only shows that we are becoming generally informed upon the subject of grape culture, and that there will be less failures in the future than there has been in the past. New systems of pruning and training will be tried with caution, and all points relating thereunto will be discussed without excitement, and their true practical importance fully understood before being adopted.

Grape culture is, to-day, upon a firm basis, and its progress, as a whole, certain. Whether we have any variety or varieties that may be relied upon for general cultivation, and which will give general satisfaction in all sections, is at least doubtful.

For a market grape, the *Concord* is probably the most popular variety known, and the award of the Greeley prize to it will make it more sought for than heretofore. The Concord is superior, in some respects, to anything we have, but in others it is very inferior. It is very hardy; very productive; leaves tough and firm; seldom affected

by mildew ; fruit large and handsome, but not best in quality, and skin so tender that it frequently breaks in handling.

Catawba.—This has long been, and still is, a favorite in regions where it can be successfully grown. It has few superiors in beauty or quality, and is well worthy of any extra care and cultivation.

Delaware.—No new developments in regard to this variety have appeared. It is still the very best in quality, requires the best of cultivation, and liable to mildew in many locations, while in others it is entirely exempt. Well worthy of a trial everywhere.

Ives' Seedling.—This is much praised at the West as a wine grape; and judging from several specimens which we have received from that section, we think it deserving of all the laudations that it has received. It makes a dark red wine of much body. The vine is an excellent grower, and so far has been free from disease. Promises to be a superior variety for the West and South.

Iona.—This is still claimed to be the best of the newer varieties, and probably is one of the best where it succeeds; but that it will thrive over a wider range of country than many others is very doubtful. We hear of just about as many failures as we do of successes, therefore we conclude that it is one of those kinds that may do admirably in one garden and soil, and fail with equal care in another near by.

Rogers' Hybrid, Israella, Adirondac, Creveling, and similar varieties, appear to maintain the position they occupied a year or two since; that is, they succeed better in New England and through eastern and central New York and in

portions of Pennsylvania than elsewhere. They do not appear to be planted extensively anywhere, the vineyardist preferring to experiment more before planting in large numbers.

On the account of the unsettled state of affairs at the South, we hear but little of interest about grape culture from that region; but we expect that the people will soon be in a condition to plant largely of some of the new varieties, and it is to be hoped that some of them will succeed better there than at the North. In southern New Jersey, Maryland, and Delaware many new plantations have been made, and from a few we hear favorable reports. As an index of what varieties succeed best, and the principal cause of failure with others, we give the following extracts from a letter from E. H. Bancroft, of Camden, Delaware. He reports the condition of the vines after being planted two years.

"400 Concords made two canes eighteen feet long the second year. 500 Allen's Hybrid, one half winter-killed the first year—the remaining made feeble growth, affected by mildew and sun-scald. 300 Creveling, two to eight feet of growth, very little mildew. 300 Diana, mostly vigorous, very little mildew. 300 Maxatawny, about one half dead—the remaining portion feeble. 25 Iona, all but three dead. 75 Rogers' Hybrid, mostly vigorous. 500 Hartford Prolific, mostly vigorous, double canes, fruiting the second year. 500 Delaware, vines feeble, 200 dead—the remaining from one to five feet high."

The above extracts from Mr. Bancroft's letter are very similar to, and may be taken as a fair sample of, a majority

of the reports which come from the section mentioned above. It is not altogether discouraging, but only so in reference to particular varieties. Reports from the Northern and Western States are quite different in many respects, consequently we conclude that each section will have to experiment and learn by experience which are the best and most profitable varieties for their particular locality. To record the successes and failures of different varieties in different sections, from year to year, thus informing all what to plant, with expectation of success, and without the cost, both in money and time, of learning by experiment, is one of the purposes of the "Record of Horticulture."

Among the very newest varieties announced, and which promise to be acquisitions, are the following: Diana, Hamburg, Martha, Black Hawk, Walter, and Washington. The last two varieties, we believe, are not yet offered for sale.

VI.

SMALL FRUITS.

The cultivation of small fruits has been in a great measure neglected until within the last ten years. Probably this indifference on the part of land-owners was principally owing to the fact, that the varieties generally disseminated did not succeed except in a few particular locations. Whatever the cause may have been, the fact is apparent, that our markets have been very scantily supplied.

The farmers adjacent to our large cities and villages do not appear to appreciate the advantages of their position, for a majority of them continue to cultivate the ordinary farm crops, which seldom return more than twenty to thirty dollars per acre, while at least five times that amount ought to be realized from the cultivation of fruits or vegetables, anywhere within ten to fifty miles of our large cities. It it not expected, nor desired, that all the land near our cities should be devoted to fruit culture, but that there is need of a much greater portion being used for such purposes, the high prices of fruit and the inadequate supply prove.

It may be urged by some that there is not a sufficient demand in all of our cities and villages to warrant extended fruit culture, especially with those we term small fruits; this in part may be true in reference to some particular

markets. But it should be remembered that a taste for any particular fruit is often—or in fact, usually—acquired, not being, strictly speaking, natural. This is not only the case with individuals, but communities. We see the truth of this exemplified in many cities, where, ten years since, a dozen crates of strawberries or raspberries would supply the market; but at the present time a hundred similar crates would be considered a very insufficient amount, not because the inhabitants have increased in a similar ratio, but because they have acquired a taste for such fruits and consider them as necessities. Thus it is that the demand far exceeds the supply, and probably will continue to do so, until the farmers in the immediate vicinity of the markets learn that fruit-growing is really (when properly conducted) a pleasant and profitable business.

BLACKBERRIES.

The number of varieties of Blackberries in cultivation is not so large that we can not readily determine, after a very slight experience, which are really the best. Among the older kinds the New Rochelle and Dorchester are the best known. They are both good varieties, and cultivated in many localities with profit; still, they have their faults, and fruit-growers have been looking for something better. Whether such kinds have been produced is not fully determined, but the probabilities are that they have.

The most prominent among the new varieties, and the ones that give the greatest promise of superior excellence, are the Kittatinny and Wilson's Early. The first is very superior in flavor, very hardy, of large size, and productive;

while the latter is recommended for its large size, good quality, and earliness. In addition to its earliness, it has one peculiar merit not possessed by other varieties, and that is, of ripening the whole crop in a very short space of time, usually in about two weeks. If we had but one variety, this quick ripening would not be considered a merit; but as we have others to follow it, it becomes an advantage, because we are enabled to market one entire crop by the time another of the same kind has fairly commenced. There are several other varieties claiming attention, some of which have been before the public for a number of years, but for some cause have made but little progress toward gaining that notoriety which their introducers desire. Among these are the Holcomb, Felton, and Mason's Mountain. Perhaps some new merit will be discovered that will make them worthy of more extended cultivation, but up to the present time they have not been considered equal to the other varieties named.

RASPBERRIES.

A few years since, the only variety of Raspberry cultivated to any extent for market was the Red Antwerp; but when Dr. Brinckle, of Philadelphia, produced his new seedlings, it gave a new impetus to Raspberry culture. Both new and old varieties were again sought for, with the hope that a really fine sort might be obtained that would not only prove productive, but hardy. The Antwerp, Franconia, Fastolff, and all of this class required covering, as well as all of Dr. Brinckle's seedlings. They not only required protection in winter, but they would not

thrive except in particular soils and situations. While the excellence of these varieties was generally acknowledged, the fact that they could not be profitably grown, except in particular soils, was a great hindrance to their dissemination; besides, their total failure in some sections left the people without any fruit of this class. This has been the case in many of the cities south of New York, for it is well known that the greatest Raspberry region of the country is along the banks and in the immediate vicinity of the North River. From this section immense quantities of the Red Antwerp are still annually sent to New York city; in fact, the city may be said to be supplied from that region of country, and the supply is often scanty enough. Latterly, disease has become quite prevalent among some of the Red Antwerp plantations. The plants are attacked by a species of rust during their growth, consequently the canes do not fully mature, and when covered in winter they decay, to the almost total loss of the ensuing crop.

Fruit-growers have been trying to discover some variety that would not only prove hardy, but that would succeed over a wider range of country than those heretofore grown. It is to be hoped that such varieties have been produced. Among the most prominent of these is the Philadelphia; it is doubtless of the old purple-cane class, but very different from it in many respects. It is not so rampant a grower, neither does it naturally root from the tips, as the purple-cane does. Fruit is large, purple, and moderately firm, and of fair quality. Its greatest merits are that it is perfectly hardy, wonderfully prolific, and succeeds in soils

and locations where those of the Antwerp class fail. It is without doubt a variety that will be very acceptable to many sections of the country, especially to fruit-growers who are located on the sandy soils of New Jersey and southward.

Burlington.—Originated in the garden of Mr. Prosser, near Burlington, N. J. Of the Antwerp class; red, of large size, but little disseminated.

Clarke.—The Clarke was raised some ten years since, but not disseminated until two or three years ago. It is a red raspberry, and probably belonging to the same natural family as the Red Antwerp; but so far as known it has proved hardy, and grows vigorously where the Antwerp fails. The fruit is most excellent in quality. Plant vigorous and productive. Promises to be a decided acquisition.

Duhring.—A new variety from near Philadelphia; it is highly recommended; but as it has not been fully tested outside of the garden, where it originated, its merits are not fully known. Of the Antwerp class; red; its hardiness doubtful.

Ellisdale. — It is rather difficult to say to which of two classes this variety belongs. The plant appears to be intermediate between the Purple Cane and the Black Cap. The fruit is larger than the Purple Cane, of a light reddish purple color, of good flavor. Fig. 1 shows a berry of natural size. Canes very strong, of a light crimson color, nearly smooth, except near the base, where there is quite a number of

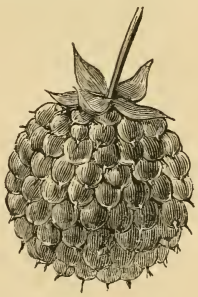

Fig. 1.

small purple spines. It propagates from the tips of the branches, but produces no suckers. Taking it altogether, it is quite a remarkable variety, and promises to be an acquisition. Found on the Ellisdale farm in Iowa, and sent out by H. A. Terry, of Crescent City, Iowa.

Huntsman's Giant.—Raised by Prof. G. W. Huntsman, of Flushing, N. Y. The fruit is very similar to the Franconia, but sweeter. Plant of vigorous growth, and continues a long time in bearing; not perfectly hardy in the vicinity of New York, but nearer so than many others of this class. Promises well.

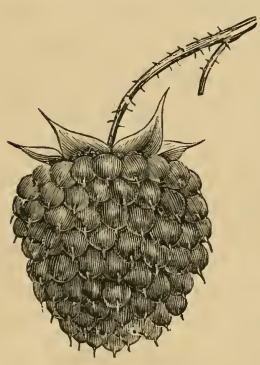

Fig. 2.

Naomi.—A new variety from Ohio, where it is highly recommended. It has not yet fruited with us, consequently we can not speak of its merits from personal observation. It is said to be a large red variety of excellent flavor, and quite hardy. In fig. 2 a single berry is shown, natural size. Mrs. Wood is another new variety originated in Ohio. Not yet disseminated.

Semper Fidelis.—A new foreign variety, much extolled in England, but judging from the little experience we have had, it is not superior to some of the older varieties.

Among the Black Cap raspberries we have the following new varieties:

Davison's Thornless.—Originated in Angola, Erie County, N. Y., and disseminated by J. Sinton. Its greatest

merit is its thornless character, rendering it admirable even in small gardens and among ornamental shrubs. It is also several days earlier than the older and well-known varieties. This is certainly an acquisition.

Surprise.—From Samuel Miller, of Avon, Pa. Also the *Fancy*, supposed to be a seedling of the Surprise. The first is a remarkably large variety of this class; the latter is not fully tested.

There are two new varieties announced in Europe, and offered for sale by Ferdinand Gloede, through his agent, C. Raoux, 42 Cedar Street, New York. The *Princess Alice*, raised by Cutbash, said to be a fine, large, red variety. *Surpasse Merveille*, raised by Simon Louis, said to be an improvement on the old Merveille des 4 Saisons.

CURRANTS.

Since the introduction of the Cherry and White Grape Currant, progress with this fruit appears to have been at an end. New varieties have been announced, but superior merits are wanting in all of them. There is certainly room for improvement, for the Cherry is too acid, and the White Grape too poor a grower. It is a pity that our horticulturists do not give their attention to the improvement of our native species. In their natural state they are the largest currants known, and the time will come when new varieties from them will be produced that will supersede all others. The Deseret, a variety of the Missouri Currant, is of enormous size, slightly sub-acid, with quite an agreeable flavor. It is a good stock from which to produce new and superior varieties. A hybrid between this and

the White Grape or Cherry would give the starting-point for great improvements. We have native species and varieties producing fruit of various colors—red, black, violet, and one of a deep golden yellow. The last is probably the only really yellow currant known. It is worthless as an edible fruit, it being too acid and slightly bitter; still, new varieties may be produced from it which would retain the original color and be improved in flavor. American horticulturists should not neglect the native currant until some enterprising foreigner produces one that will be very valuable from our native varieties, and for which we will have to pay good prices.

STRAWBERRIES.

The immense number of varieties of the Strawberry which we now have in cultivation, with the diversity of opinion in regard to their various merits, places the subject beyond the reach of any one individual to do it justice. To learn all the peculiarities of soils, climates, modes of cultivation, and the various phases which are developed in their culture, would require one to be everywhere present at the same time and at all seasons. Consequently, we will not attempt to recommend any particular variety, or any number of them, but leave it for each individual to try and learn which are the best for his particular soil, location, or mode of cultivation. Some of our varieties will only succeed in strong, moderately compact soils, while others do best in a light sandy one. The same is true as to cultivation; some require to be grown in hills, and all runners cut off, to produce the best results, while with others this

practice would be labor lost, even if it were not a detriment. Neither will we attempt to say which are the best in quality, because climate as well as soils often makes a great change in this respect, and a variety that would be too acid on a heavy soil or in a northern climate might be so affected by change as to be really good in a light sandy soil or in a warmer climate. Besides the foregoing difficulties, we encounter the tastes of different growers and consumers. We are often amused, as well as instructed, in visiting amateurs and nurserymen and walking through their grounds; tasting the different fruits, we can soon discover in what particular channel their individual taste is inclined. A fruit to suit one must be of a decided character, a sprightly acid being the favorite; while another grower's taste runs all to the saccharine; and if the fruit is not very sweet, it is at once pronounced worthless because too acid. Another class of growers are fully satisfied with an abundant crop, if it can be produced with very little expense.

Taking into consideration the different ideas and tastes of cultivators, we can readily account for the diversity of opinions expressed by the various strawberry-growers. If we should give a list of twelve varieties, which have actually proved to be the best out of the five hundred we have tested, *i. e.*, those which have succeeded best on our grounds and are most agreeable to our palate, we are quite certain there is not another grower in the whole country that would say Amen. And we are equally certain that no one would name twelve varieties that would be as acceptable to us as our own list.

Strawberry-growers who practice high culture—that is, plow deeply, manure heavily, and keep their plantations clear of weeds—will recommend a longer list of varieties, and speak more highly of each than those who practice the reverse. Not one cultivator in a hundred practices high culture with the Strawberry, nor has learned that the very best of culture is usually the most profitable. Each individual grower fixes a standard for himself, and discards all that do not agree with his notions of quality, hardiness, size, or productiveness. With some, the main point must be the perfect hardiness of the plant. This is truly a great desideratum; still, one of the most profitable varieties we ever tested required protection to insure a full crop. The additional expense of covering the plants in winter was doubly returned in the increase of fruit. All these points have been discussed *pro* and *con.*, and strawberry-growers are as widely apart in opinion as ever.

Among those varieties which have been fully tested, the following ten may be considered as a fair sample of the numerous first-rate Strawberries of the different classes:

Agriculturist.
Autumnal Galande (Monthly Alpine).
Boston Pine.
Brooklyn Scarlet.
Downer's Prolific.
Early Scarlet.
Hovey.
Ladies' Pine (small, but of exquisite flavor).
Lenning's White (the best of its class).
Wilson's Albany.

Among the newer varieties, the following promise well: Durand's Seedling, Ida, Metcalf's Early, Philadelphia, Great Eastern, New Jersey Scarlet.

GOOSEBERRIES.

Mildew still prevents any great progress in Gooseberry culture, especially if we attempt it with the foreign varieties. If only young and thrifty plants are used, a fair crop may be relied upon in almost any moderately rich soil; but when the plants become old, they are almost certain to be more or less affected by mildew, especially in the Middle and Southern States. Those who desire to cultivate the best foreign kinds should not neglect to plant a few cuttings every year, so as to keep a constant supply of young plants on hand. If the soil is naturally dry and warm, it is best to mulch the plants during the hottest weather. Thin out and shorten the young wood every year, so that the air can have free access to the fruit and leaves. Our native kinds are almost entirely exempt from mildew when properly pruned and cultivated. Of these the Downing is the best in quality, and the Mountain the largest. The Houghton Seedling and the Cluster are also excellent varieties. Gooseberries require a rich soil and good culture.

CRANBERRIES.

Cranberry culture is rapidly becoming a prominent feature in American Horticulture. The greatest obstacle to its culture has been the expense of preparing the soil, but in the last few years companies have been formed with abundant means to plant Cranberry fields on an extensive

scale. There is probably no section of the country where so much attention is being given to Cranberry culture as in New Jersey; throughout the southern portion of the State there are large tracts of land admirably fitted for its culture, and capitalists have taken hold of these and are rapidly changing them into beautiful and fruitful fields. At Manchester, Ocean County, some four hundred acres are already planted. At Elwood there is an equal number of acres planted, and hundreds more in preparation. In many other sections of the State large plantations are being made, and there will probably be five thousand acres of Cranberries planted in New Jersey within the next five years. That these plantations will return a large profit on the investment there is scarcely a doubt. It may be asked if there will be a market for such an enormous amount of fruit? Most certainly, for when the ordinary channels are supplied new ones will be opened. Cranberries will be exported in large quantities to countries that can not produce them. They will be preserved in cans and shipped to very distant markets. There is no fear of New Jersey, Cape Cod, and all other sections where Cranberries are grown combined producing a surplus in the markets of the world.

In making the New Jersey plantation, the wild plants gathered from the native bogs are chiefly used, the growers believing that they are equal to the improved varieties; and if not, they are indigenous to the soil, and are obtained in any quantity and with very little expense. All the plantations are so arranged that they can be overflowed whenever it is necessary to protect from cold or prevent

the attacks of insects. The whole arrangement of the Cranberry fields of Manchester and Elwood shows a well-digested plan at the start, that is being carried out in a manner that will be a credit to the proprietors and to the country. We have seen nothing in Horticulture for many years that has so impressed us with the importance of a union of purpose among fruit culturists as the great Cranberry fields of Manchester and Elwood.

VII.

ORNAMENTAL PLANTS.

ROSES.

The Rose, which has for ages been the queen of the garden, still holds the scepter, and rules with almost undisputed power. Many new varieties are annually produced, and we are almost appalled at the long list of names in some of the Rose catalogues. But where all are beautiful, there is no difficulty in being pleased, if we can not be entirely satisfied. In beauty, we can scarcely say that there has been of late any very marked progress, but in variety of form and color, as well as in the increased quantity of flowers, there has certainly been considerable progress.

Once a year for the appearance of this beautiful flower is no longer satisfactory, but a perpetual feast is required, consequently rose-growers are giving their attention more particularly to the perpetual than to the annual bloomers. The most popular class has been the Perpetuals and what are termed Hybrid Perpetuals. Among these there are hundreds of magnificent varieties, and no one could but admire a General Jacqueminot, Victor Verdier, Lord Raglan, Giant of Battles, Louise Odier, and a host of others equally superb. This class of roses, as a rule, are hardy, and will endure a northern winter unprotected. If the branches should be killed, the injury is but slight (particu-

larly if they are on their own roots), because it is from the new shoots that the best flowers are produced. The greatest fault of this class is that they are not perpetual, as their name indicates. They bloom at the usual time of other roses in spring, and then occasionally give a few flowers during the summer. To make them bloom with any degree of certainty through the season, they must be severely pruned after the flowers are gone, and the soil made so rich that there will be a constant succession of young shoots. A moderately tenacious soil with a liberal application of well-decomposed manure are the requisites for producing the best results in Rose culture.

Among the very latest novelties in this class of Roses are the three following, introduced from France, by C. Raoux, importer, 42 Cedar Street, New York:

Adrien Marx.—Flowers, very large, often nearly five inches in diameter, very full and double, of good shape, and of a bright cherry red.

Clemence Raoux.—A seedling from that old and superb rose La Reine. Flowers, four to five inches in diameter, of good form. Color, a peculiar shaded salmon. A vigorous grower, and promises to be an abundant bloomer.

Madame Martin de Besse.—Flowers, three to four inches in diameter, very full cupped. Color white, shaded with pink. A vigorous grower.

There are several other new and promising varieties announced by the various European rose-growers, which will probably be tested in American gardens another season.

Considerable attention of late has been given to what are usually termed tender Roses, such as the Noisettes,

Bourbons, China, and Teas. These classes constitute the true perpetuals, upon which we must mainly depend for a continual succession of flowers throughout the season. It is true they will not withstand the severity of our northern winters; still, they are so easily protected, that they are well worthy of attention by every one who delights in a good garden. The plants may either be laid down at the approach of cold weather and covered with earth, or taken up and heeled in, entirely covering them with soil. It is far better to risk them in the open ground, when protected, than to lift them and put them away in the cellar, as is usually done. For several years past we have adopted the plan of taking up the plants of these classes and placing them in a trench and then covering them with earth. In spring they are taken out, all the dead or decaying wood trimmed off, and planted as before. The plants get the requisite amount of rest, and the taking up and replanting do not appear to injure them in the least. The situation where they are buried should be a dry one; and when the ground begins to freeze, if a quantity of coarse litter is placed over the surface, it will be beneficial, because it will keep the ground frozen, and will protect the plants from freezing and thawing; the change from one state to the other causes more injury than the severity of the cold which they have to endure.

The Bourbon and Tea Roses have always been favorites with the ladies, and we think if they only knew how easily they could be preserved through the winter, they would be esteemed more highly than now. All that is requisite in their culture during summer is to produce a

strong and healthy growth, so that a portion of the wood, at least, shall be fully mature at the time they are placed in their winter quarters. Besides being perpetual bloomers, these roses are the most readily propagated from cuttings or layers. For cuttings, choose the half-ripened wood; usually the lateral shoots are best, cutting them off close to the main stem; remove all but one or two leaves, and cut off the upper portion of the shoot so that the cutting will be three to six inches long. Plant these cuttings in pure sand, either in a flower-pot or in a shallow box; place them in a half shady place, either in the house or in a warm situation in the open ground. If a bell-glass or a common drinking-glass is inverted over them, it will assist them to grow. Keep the sand moist or wet, but never let it get dry. The blooming shoots, after the flowers have gone, also make good cuttings, and with some varieties root as readily, or more so, than any other portion of the plant. There are many ladies who are very skillful in propagating Roses in this rather primitive manner, but there are some who would give more attention to the cultivation of Roses if they could readily multiply any new variety which they might purchase. Those who do not succeed with cuttings should try propagating from layers. This method is performed by bending a shoot down and covering a portion of it with soil. Before it is covered, a small notch should be cut at the point where it is to be covered; or, what is better, insert a knife at the base of a bud, cutting about half way through the branch, and then passing it along toward the end of the branch for an inch or more, forming what is called a tongue. From this

tongue the roots will be emitted. The branch should be fastened into place either by putting on a sufficient amount of soil or by a hooked peg. The young wood produces roots more readily than the old, consequently the last of July or August is the best time for making layers of Roses.

To produce the most pleasing effect, these roses should be planted in masses—that is, quite a number in the same bed. This is another reason why those who are not able to purchase them in large numbers should endeavor to propagate them. If they do this, it will only be necessary to purchase a single plant of each variety, and then multiply them at their leisure. With a dozen or two of the Noisettes, Bourbon and Tea Roses can always be made attractive throughout the summer, and a perpetual feast of Roses always at hand. Among the older and best known varieties which are really superb, are the following:

Noisettes.—Jean de Arc, Solfaterre, Lamarque, Juane Derprez, La Pactole, Annie Vibert.

Tea Roses.—Devoniensis, Saffrano, Madame Willermoz, Aurora, Triumphe de Luxembourgh, Viscount des Cazes.

Bourbon.—Aurora da Guide, Queen of the Bourbons, Souvenir de la Malmaison, Sir Joseph Paxton, Madame Bosanquet, Hermosa, Glorie de Dijon, Louise Odier, Leveson Gower, Paul Joseph, George Peabody.

There are several new Roses belonging to the above-named classes which promise to be acquisitions, but none more so than the two following varieties:

Marechal Niel.—This is a new variety from France, of a beautiful deep yellow color; large, quite double, and very fragrant; a beautiful Tea Rose and well worthy of

cultivation. Fig. 3 shows a flower of this variety of natural size.

Fig. 3.

Isabella Sprunt.—This is a sport from the Saffrano Rose, but of an entirely different color, it being a clear sulphur

yellow, without that saffron tinge so prominent in its parent. This variety was disseminated by Isaac Buchanan, of New York. It is a beautiful rose, and if it proves to be a free bloomer and good grower it will be much sought by all Rose fanciers.

THE LILY.

If the Rose is the queen of flowers, the Lily is its twin-sister, for each has its peculiar beauties that we can not fail to admire. The Rose possesses a graceful loveliness which attracts, pleases, and allures us to a near acquaintance, but the Lily often produces a repellant feeling by its stately magnificence and gorgeous apparel. Historically speaking, the Lily is one of the oldest plants in cultivation, for it is not only mentioned by ancient historians, but some of the varieties which now adorn our gardens have been in cultivation for more than three hundred years. Although these old kinds will ever find a place in our gardens and receive their full share of admiration, still we are ever ready to receive new varieties with delight. When, in 1820, the long-flowered Lily was introduced into England from China, it produced quite a sensation among florists and botanists, because it possessed great beauty and was of an entirely different type from anything previously known. But when, a few years later, Dr. Siebold brought home with him, from Japan, several varieties of Lilium speciosum, it produced a greater sensation than anything that had been introduced for many years. These Lilies excelled in beauty of color everything of this family which had been previously known.

From these few original species or varieties many new ones have been grown, rivaling, and in some instances far excelling, the parent stock. Since the introduction of the Japan Lilies by Dr. Siebold, very few species of positive merit have been discovered until the introduction, from the same source, of that wonderful and magnificent novelty, the L. auratum, or Golden-striped Lily. The advent of this species will mark another epoch in Lily culture, for it gives us a starting-point for a new race of Lilies, entirely different from anything we previously possessed.

When the Japan Lilies were first introduced they were supposed to be tender, but experience has proved them to be very hardy, and capable of withstanding our severest winters without injury. This hardy character makes them far more valuable than they otherwise would have been, because all may now enjoy their beauty with very little expense or trouble.

Those plants which are termed by botanists *Lilaceous plants*, are very numerous, for the Gladiolus, Hyacinth, Tulip, Narcissus, Convallaria, Asphodel, Asparagus, Yucca, and many other genera, are classed as members of this great family. But the one now under consideration, and which we term the true Lily family, does not contain so large a number as some of the others, and many more might be added with benefit. There has been a great want of more species and varieties, and it is this which has made the advent of the Japan species of so much value to the floral world. Hybrids between the various species will soon be produced, some of which will doubtless rival or excel the originals. One such has already been an-

nounced by Hovey & Co., of Boston; this is said to be a hybrid between L. auratum and one of the L. speciosum. A hybrid between the Auratum and Melpomene would be a very desirable acquisition, especially if it possessed the large size of the former and brilliant color of the latter. The very prominent pistil and stamens in the Lily make it a convenient subject to operate upon, and even the novice will experience but little difficulty in crossing* the different varieties that bloom at the same time. But when they bloom at different periods, it is more difficult, because the pollen must be preserved until wanted for use, unless the plants can be brought into flower by artificial means at the same time. This may readily be effected where there are green-houses at hand, for the late bloomers may be started earlier than they would if allowed to remain in the open ground.

To make the subject plain to those unacquainted with the operation of hybridizing and crossing, let us examine the flower of the common White Lily—see fig. 4; A, are the

* The term crossing and hybridizing is often used indiscriminately to designate hybrids and varieties; this we believe to be incorrect, as a hybrid is a mixture of two species, while a cross is that of two varieties. For instance, if we should fertilize the L. auratum with the L. speciosum album and produce a new variety intermediate between the two, it would be a hybrid; but if a seedling is produced between the L. speciosum album and L. speciosum rubrum, then we would have a cross between two varieties of the same species. The only difficulty appears to be, that among the immense number of plants in cultivation it is difficult to distinguish varieties from species; still, we hold that the words should be used in the sense we have named, because they are really distinct in their derivation and meaning.

six petals, which are the most conspicuous feature of the flower. B, six anthers attached to the end of a long stem-

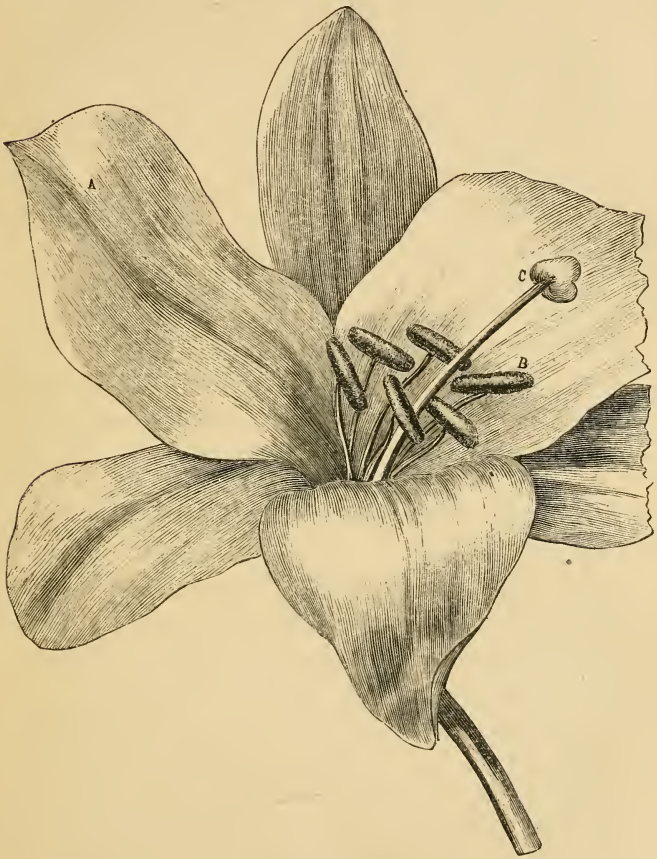

Fig. 4.

like organ, which is called a filament; the anther and filament constitute what is termed the *stamen*. On these an-

thers is the pollen, which is a small, brown, dust-like substance that adheres to almost everything with which it comes in contact. C, is the stigma, which is also supported by another long stem, called the style; at the base of this is the ovary, or seed vessel; the three constitute the *pistils*. There are other organs which are parts of the flower, but it is chiefly with these named that we come in direct contact in hybridizing and crossing.

Now suppose we wish to produce a new variety, intermediate between the white Japan Lily and the red, and we select the white to produce the seed, or, to use a common term, for the parent. When the two varieties are in bloom, select one or more flowers of the white to operate upon; and when the flowers first open, cut away the anthers from the stamens so that no pollen can reach the stigma, unless applied artificially; then go to one of the red Lilies which is in full bloom, and cut off its stamens, or a portion of them, and place them on the stigma of the white flower, the stamens of which have been removed. The pollen will adhere to the stigma, as it is covered with a glutinous substance, or will be after it has been exposed to the air for a few hours. The substance of these grains of pollen is absorbed by the pistils, and thus the seeds in the ovary are fertilized. It is usually best to delay fertilizing the stigma for a few hours after the anthers have been removed, so that it may be fully developed and in a proper condition to receive the pollen. The flower, however, should be covered with a netting, to prevent insects from fertilizing the pistil from other flowers, which they will often do with pollen adhering to their legs, thus defeating our ob-

ject. The netting may be removed a day or two after the flower has been operated upon; then mark each one so that when the seeds are ripe they may be saved separately. The same process and mode of operation are applicable to most of our cultivated plants; but the organs of the Lily are large and prominent, as we have observed, which makes it one of the best plants known for the novice in these matters to experiment upon. Besides this, the Lily is at the present time attracting considerable attention and many of our amateurs will doubtless endeavor to produce new varieties. We have given the above directions with the hope that it may aid them in their very pleasant task.

PROPAGATION.

There are but two methods generally adopted in propagating the Lily, viz., by seeds and division of the bulbs. Growing from seed is mainly for the purpose of producing new varieties, as it is more tedious than that of dividing the bulbs, as the seedlings require a longer time to become large enough to bloom. Although it requires greater care and more time to produce blooming plants from seed than from the divisions of the original bulbs, still the chances are in favor of producing new and superior varieties by the operation. Only a few of the Lilies now in cultivation are the original species, but varieties of them, consequently we may look for greater variations in the seedlings therefrom, even without artificial impregnation of the flowers, than was obtained in the beginning. Still it is best to assist nature in producing the desired result, and in no way can we be more certain of doing this than im-

pregnating the stigma of one flower with the pollen from another.

Gather the seed when fully ripe and put away in a dry place until wanted for use. Early in the spring sow them in good rich soil; if it is naturally heavy, add sand, leaf-mold, or some similar material that will make it light and porous, so that the seeds will not meet obstruction in their growth. Sow the seeds in drills, covering them about a half inch deep. If the weather should be dry, give the seed-bed a liberal supply of water whenever required. In the fall apply a good and liberal dressing of coarse manure, to protect the young bulbs from frequent freezing and thawing. The bulbs may be allowed to remain in the seed-bed two years, at the end of which time they should be transplanted to where they are to remain until they bloom, which they will do in three to four years from seed.

Whenever a variety is produced worthy of propagation, it should be taken up and planted in a separate bed, where more care can be given it than if allowed to remain among the other bulbs. In some species the bulbs multiply by natural divisions, in addition to the formation of new ones on the stems above the main bulb. All the species under consideration in this article have what is termed scaly bulbs—that is, they are composed of numerous thick, fleshy scales, which overlap each other at the sides in an imbricated form. These scales are all joined to a transverse section of the bulb at the base, from which the true roots are produced which support the bulb.

Fig. 5 shows a bulb of L. speciosum about one half the natural size. The flower stem is produced from the base

and center of the bulb, and as it pushes its way upward it partially divides the bulb, forcing it open; and by keeping it in this position for the two or three months which is required for the flower and seeds to mature, causes the bulb in most cases to produce two or more distinct flower-buds for the ensuing season. Thus we find bulbs that produce one flower stem the first season, producing two the next, and often four the next, after which they usually become entirely separated, and the same process is repeated. From these natural divisions we learn that these bulbs are simply an aggregation of individual bulbs, though collectively they are but one, and that each scale is capable, under

Fig. 5.

Fig. 6.

proper conditions, of becoming or producing a perfect bulb; not that the scale itself enlarges into a bulb, but a new one is formed at the base of it (see fig. 6, which shows the new bulb as it is being developed), the scale being a

reservoir of food from which the new bulb draws its sustenance until roots are produced through which it may obtain food from the soil. Sometimes more than one bulb will be produced from a single scale. In this way new varieties are rapidly multiplied. The first bulb of L. auratum which we obtained came directly from Japan, and from being many months on the way, it had become very dry and much shriveled; but from twenty of the outside scales we produced twenty-six bulbs the first summer, some of them being nearly three fourths of an inch in diameter at the close of the growing season. The scales will often do well if planted in the open ground, but it is always best to plant them in boxes or pots in the propagating-house or in a hot-bed. It is also best to take up the bulbs from which scales are to be taken and let them dry for a few days before taking off the scales. In separating the scales, insert the point of a knife at their base, and at one side cutting in a circular direction around the bulb, so that the scale shall have a portion of the ligament by which it was attached to the bulb remaining upon its base. This is not absolutely necessary to its growth, because a scale broken off will grow; still, they grow more readily if separated with care, and as we have directed. A large bulb may be entirely dissected and all of the scales used, but usually it is better to take off only a few of the outside layers, and then plant the main bulb.

The scales may be planted immediately in the ground, or put into boxes or pots of sand and placed in a position to grow. They require but very little water at first, only just enough to keep them from shriveling; if kept too wet

they will surely rot. A very good plan is to mix the scales with fine moss or pure sand, and put them where they will not dry nor become wet, but just moist; let them remain in this position until the small bulbs begin to form and roots show themselves, after which plant them out in the open ground or in the house. In a warm cellar, or in any warm room in the house, these scales will produce new embryo bulbs. Give them plenty of time, and do not endeavor to hurry the rooting process, and success is almost certain.

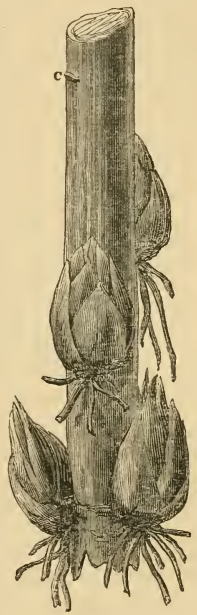

Fig. 7.

In addition to the natural division of the bulbs in the L. speciosum and auratum, new bulbs are formed on the flower stems above the old bulbs. Fig. 7 shows a flower stem, with the young bulbs adhering to it; from each of these bulbs there are more or less roots, showing that they are already provided with means of self-support before the flower stems die in the autumn. The particular point on the stems where these bulbs are formed is worthy of a passing remark. If we examine the flower stem, we see that it is clothed with leaves from the base to the top, similar to a young seedling tree or shrub; but if we examine the stem at the point where the leaves form a junction with it, we find no buds as we do in the woody plants; but that there is a latent power in the plant to form buds at this point is conclusively

proved by examining that portion of the stem which is buried in the soil, where we find that at the point where there would have been leaves, if above ground, there are now perfect bulbs. The position of the bulbs on the stem shown in fig. 7 clearly proves this fact, for by detaching them we find that peculiar mark which is always observed where a leaf has been attached — fig. 7, c. We have counted no less than eighteen bulbs formed in one season on a flower stem above the old bulb and below the surface of the soil. Therefore the deeper the bulb is planted, the more young bulbs will be formed on the flower stem, because the more leaf-buds will be covered. The depth must not be too great, especially in heavy soils, for in that case the flower stem will not be able to push through the soil, and all will be lost. Three inches in heavy soils and four to six in light will be sufficient. The young bulbs formed on the flower stems should be removed every fall and planted out by themselves. A common garden trowel is a convenient implement to remove the soil from around the stems, so that the young bulbs may be detached without injuring the old bulb.

The formation of bulbs at the junction of the leaves, on the flower stem, must have been often noticed by every one who has cultivated the old Tiger Lily. But in this species they are more abundant above ground than below; in fact, every leaf produces one or more small bulbs at its base; but we have never observed a bulb on the flower stem of any of the L. speciosum varieties, except as we have stated, viz., below the surface of the soil. Other species of the Lily have bulbs of quite a different structure

than those we have named. The common field Lily (L. superbum) has a bulb composed of very thick, fleshy scales, but very fragile and easily separated. The bulbs do not divide as those noticed, but produce a single flower stem, and a new bulb is formed at one side, which in its turn produces a flower stem. Fig. 8 shows one of these bulbs

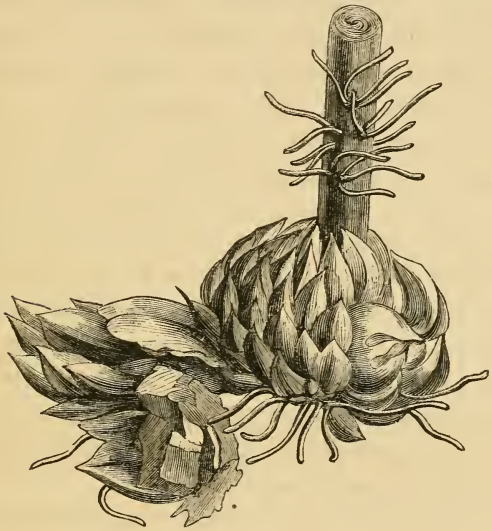

Fig. 8.

of L. superbum; at the left is shown the old bulb which has bloomed and is decayed; in the center is the perfect bulb with flower stem of this season; at the right, and near the base of this, is the new bulb forming for the next year; thus we see that the plant actually moves in the ground, the old bulb being partially absorbed by the new, which in its turn produces a flower stem with flower leaves

and seeds; this dies away and assists in forming a new bulb. Roots are formed above the bulb on the stem as well as below; those on the stem assist no doubt in furnishing food to the stem and flowers. The scales of this species, if separated, grow almost as readily as the whole bulbs.

Various are the distinctive characteristics of the different species of Lilies—all of which are worthy of study; but our space will not permit us to go more into detail as to the structure of this very interesting class of plants. There are, however, one or two points which we can not pass without a remark. Some species of Lilies make a second growth in autumn; the L. candidum and L. longiflorum, and their varieties, are the best known examples; consequently all such varieties should be planted in the summer, soon after they have flowered, because that is their period of rest; usually September and October are the months which are selected for planting these kinds. Those species which do not make a second growth in the fall, may be planted early in spring; still, the fall is the best time to plant all hardy bulbs.

Lilies require a deep, rich soil, and most of the species succeed best in what would be called a light soil—that is, one that is loose and friable. The following list comprises the best known species and their varieties, all of which are hardy—at least sufficiently so to be placed among hardy plants. Some of them may require a slight protection in particular soils and locations.

Lilium auratum (Gold-striped Lily).—Flowers, very large, nearly twelve inches broad; petals, spotted with

chocolate purple, and a broad gold-colored stripe down the center of each petal. The most magnificent Lily yet discovered. From Japan. A new variety is announced in England, said to have a broad red stripe in place of the gold-colored in the original.

L. speciosum (Japan Lily).—This species was named by Dr. Siebold, L. speciosum Kæmpferi, in honor of that indefatigable botanist Kæmpfer, who first made it known to the scientific world. Lately, however, the name of Kæmpfer is omitted. The species is also known in nurserymen's catalogues under the name of L. lancifolium. It is difficult to determine which is the original species, therefore we will call them all varieties of speciosum. The following are some of the best known:

L. speciosum album.—Pure white; large and fine.

L. speciosum album monstrosum.—Similar to the last, except in growth, the stems appearing like several united in one.

L. speciosum Clio.—Crimson ground, with deep ruby spots.

L. speciosum Calliope.—Purplish-crimson ground, spotted with deep purple.

L. speciosum Eva.—White, shaded with pink, and dotted with rose.

L. speciosum Erato.—Delicate blush, shaded with rose, and spotted with crimson.

L. speciosum Melpomene.—Deep rose, spotted with dark purple; the darkest colored variety of this species.

L. speciosum rubrum.—Rose color, with deep purple spots; a little deeper colored than the preceding variety.

L. speciosum roseum.—Pale rose, with purple spots.

L. speciosum punctatum.—Pure white, with very delicate pale rose spots; flowers, large and very beautiful.

L. speciosum Polyhymnia.—Crimson ground, spotted with purplish crimson.

L. speciosum Thalia.—Deep crimson, shaded and spotted with ruby and edged with white.

L. speciosum Terpsichore.—White ground spotted with rose.

L. speciosum Urania.—Rosy crimson, shaded and spotted with ruby.

In addition to the above there are several other varieties, the true characters of which are not fully known. For instance, we have received three distinct varieties under the name of L. Brownii, two belonging to this species and one to the L. longiflorum.

L. longiflorum (Long-flowered Lily).—The varieties of this species produce flowers of from six to twelve inches in length, trumpet shape, and usually very fragrant. In this vicinity (New York) they generally make a growth in the fall, the same as the old White Lily, the flower stems appearing early in spring, consequently the safest time to transplant them is in early autumn. There are very few distinct varieties. The best known are—

L. longiflorum album.—Flowers, long, pure white; this is the original species; discovered many years ago in China.

L. longiflorum eximium, *Takesima*, and *Liu Kiu* are very similar to the species, if not identical.

L. longiflorum Wallichianum.—Flowers, pure white, but nearly twelve inches in length and five broad.

L. longiflorum Nielgherrense. — Flowers, very long, greenish white; fragrant. From India.

The following list comprises some of the best known varieties of hardy Lilies, some of which may possibly belong to the species already named; but this point it is difficult at the present time to determine.

L. Chalcedonicum. — Beautiful, brilliant scarlet, the petals so much reflexed that the flowers appear like a round scarlet ball. Austria and Persia.

L. excelsum.—A very tall-growing species, with pale scarlet or buff-colored flowers. Probably only a variety of the L. Chalcedonicum.

L. candidum.—The common White Lily, and one of the very best. There are several varieties of this species in cultivation, such as the double-flowering, striped-leaved, etc., but none are better than the original.

L. peregrinum.—A very pretty, small flowering kind, with narrow leaves; known in the time of Linnæus as L. candidum. It is also called L. album and L. Byzantium by some of the earlier botanists. It is probably a variety of the L. candidum.

L. croceum.—A small but very pretty yellow Lily. Native of Germany.

L. Catesbæi. — Flowers, red and yellow, with dark brownish spot in center of petals. Grows about a foot high, with only one flower on each stem. Native of South Carolina.

L. Philadelphicum (Wild Orange-red Lily).—Flowers, bell-shaped, scarlet, spotted with dark purple. Common in the Middle States.

L. bulbiferum.—The common orange or red Lily of our gardens. Native of Austria.

L. Canadense (Wild Yellow Lily).—Flowers, oblong, bell-shaped, yellow, spotted with purple; very common; wild.

L. superbum (Turk's Cap Lily).—Flowers, bright orange color, spotted on the inside with purple. Common in low, wet bogs.

L. Fortunii.—Flowers, orange yellow, dotted with brown purple; leaves linear lanceolate, alternate; stem very slender. A new variety from Japan.

L. fulgens.—Flowers, dark-brownish red, large; stems growing about two feet high, with four to six flowers on each. This species is sometimes called atrosanguineum. From Japan.

L. fulgens staminosum.—A new variety from Japan; flowers, dark crimson, in which the stamens become petaloid emarginate.

L. nigrum.—This is another new species. It is called the Black Lily of Kamtschatka, or Sarana Kamtschatica. The flowers are very dark colored, and resemble in form the Fertillary.

L. giganteum (Giant Lily).—Flowers, large, trumpet-shaped, white within and brownish on outside; stems grow six to ten feet high, bearing fifteen to twenty or more flowers. It requires a slight protection in winter in the Northern States

L. tigrinum.—The common Tiger Lily; well known.

L. avenaceum.—Flowers, small, bright orange, spotted with red. Japan.

GLADIOLUS.

The Gladiolus belongs to the great family of lilaceous plants. They have what is called solid bulbs—that is, the scales are entire, surrounding the bulb, forming concentric rings without the natural cross sections as seen in the imbricated bulb. The Gladiolus is a perennial plant, and yet the mature bulbs are, strictly speaking, only annual. A bulb planted in spring produces one or more flower stems, at the base of which and above the old one a new bulb is formed; the old one decays as the new one is produced. At the base of the new bulb small bulbs are formed; in some varieties they are very abundant, in others very few.

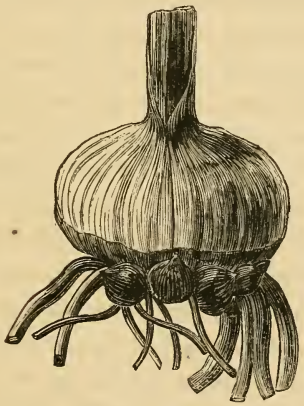

Fig. 9.

Fig. 9 shows a mature bulb with the stem cut away; the small bulbs are shown attached to the base, as they appear when the plants are taken up in autumn. The small bulbs (or bulblets, as they are sometimes called, to distinguish them from the larger ones) may be planted, and in

two or three years will produce large ones, like the parent bulb. The Gladiolus increases, not by natural divisions as with some other bulbs, but by the formation of buds that produce flower stems, which in turn form bulbs at their base, as before stated. Some kinds increase very slowly, others quite rapidly; if by examining the bulbs when taken up in the autumn we find but one bud on its upper surface, it indicates but one stem and one bulb the next season; but when two or more buds are observed, then we can depend upon a corresponding increase in bulbs. If a more rapid increase is desirable than can be obtained from the large bulbs, then the small bulblets may be saved for this purpose. With some varieties it is better to plant these in the fall, covering the beds, where they are sown, with four to six inches of some kind of mulch for protection.

We have found that, by planting in the fall, nearly every bulblet will grow, which is seldom the case if the operation is deferred until spring. Whether this fall planting will do for all varieties we can not say, for it is well known that some are far more hardy than others; but with the few that we have tried, better success has been obtained than when planted in spring. The small bulblets are more hardy than the mature bulbs, as they do not contain so much fleshy matter, and consequently are not so liable to injury by frost. The fall planting is worthy of trial by Gladiolus growers. Where there is a propagating-house at hand, the small bulblet may be forced into growth at almost any time by artificial heat. The new bulbs produced from the bulblet should be taken up at the end of the second season and treated the same as those that are full-

grown—that is, put away in a dry, warm place until spring. When it is desirable to keep up a succession of flowers during the entire season, the bulbs may be planted at different times, from the first of April to the first of June. Soil similar to that used for other bulbs—that is, a deep, rich one—is all that is required for the Gladiolus. The bulbs should be covered about two inches deep and a foot apart, and they may either be planted in rows or groups; the latter present the best effect.

The Gladiolus produces seeds in abundance, and new varieties are sure to be raised from almost any variety in cultivation. Still, it is better to save the seeds of superior varieties than from the inferior. Gather the seeds when fully ripe and put away in a dry place, as with other seeds. Sow in spring in rich, freely pulverized soil, covering them about one half inch deep. Keep the soil moist until they come up, and water occasionally thereafter as required. Take up the bulbs in the fall and mix them with dry sand, and then put away in the cellar. Plant out in spring, and give the same care as given to larger bulbs.

Great improvements have been made in the last few years with this class of bulbs, and at the present time there are several hundred superb varieties in cultivation. The flowers are really magnificent, and blooming, as they usually do, at a time when flowers are comparatively scarce, adds very much to their value.

To select a list of the very best would be a difficult matter, because there are so many really good, therefore we will not attempt it, but only name a few that are distinct in color and among the most desirable.

Calendulaca.—Beautiful nankeen yellow.

Compte de Morny.—Dark cherry red with large, white throat.

Danæ.—A new American variety. Peach blossom color, mottled with vermilion, lower petals with broad stripe of purple.

Eliza (new).—Delicate flesh color, tipped with vermilion; purple throat.

Emperor Napoleon (new).—Light salmon color, lower petals shaded with deep yellow, small maroon stripes; extra large flowers.

Imperatrice Eugenie (Sauchet).—Flowers, very large, white ground, shaded with rose on the inside and lilac on the outside of the petal.

Juno.—White, striped with purplish lilac.

Lord Wellington.—Yellow ground, upper petals splashed with purple, lower ones with deep violet stripes, edged with deep yellow.

Madame Leseble.—Pure white, with large, white purplish stains.

Napoleon III.—Brilliant scarlet, with red and white stripes.

Ninon de l'Enclos.—Carnation colored, variegated with rose.

Plinnie.—Cherry rose, with white center.

Premice de Montrouge.—Splendid, bright crimson; very dwarf grower.

Reine Victoria.—Pure white, stained with carmine and violet, with a wide purple stripe down the center of each petal.

Sorthene des Jardins.—Beautiful bright Magenta color, with small spots of purple, very superb.

Vulcain.—A small flower, but superb in color, being a velvety purple shaded with maroon.

ANNUALS.

Plants that are generally called Annuals are those which live but one season; during this time they produce their flowers and seeds, and then decay. The life of many of these plants, and we may say all of them, can be prolonged for several years by merely protecting them from the cold, and at the same time prevent the maturing of their seed. The chief object of nature appears to be the perpetuation of the species by seeds; and when by accident, or otherwise, this is not accomplished at the period evidently designed for it, the plant continues to live and struggle for existence until an opportunity is afforded for finishing its work.

The production of seed is of more vital importance to the plant than the flowers, for it is this which exhausts its strength, and with Annuals the main cause of death. That this is true, we infer from the fact, that not only can most of our Annuals be made Perennials, by simply preventing the ripening of their seeds, but many of the double-flowering varieties, which produce no seeds, are cultivated in conservatories as Perennials, while others of the same species with single flowers are only Annuals. Therefore by nature a plant may be an Annual, but through the effects of artificial cultivation—such as propagation by cuttings, protection from the inclemency of the weather—it

has become Perennial. Again, many kinds which we class as Annuals in our severe climate are Perennials in their native ones.

Our florists generally divide the Annuals into three classes: 1st, Hardy Annuals, such as will withstand great extremes of weather, even to a light frost. 2d, Half hardy, which are liable to injury by sudden changes, besides requiring extra care in regard to soil and culture. 3d, Tender Annuals; these thrive very poorly in the open air, consequently require protection, either by being planted in a sheltered situation or grown in the house.

These divisions are somewhat imaginary, because the difference between the climate of different States is often greater than is the constitution of the plants of the three classes. A plant may be a tender Annual in Maine, but quite hardy in Georgia, therefore purchasers of seeds, in making selections from florists' catalogues, should take into consideration the fact that the signs H. A., H. H. A., and T. A. may have been affixed to these plants in a far different climate than their own.

The chief points to be observed in cultivating Annuals is to have a properly prepared soil, because a large proportion of the seeds are very small, and will not admit of being buried deeply; especially in a soil that will become hard and compact after every shower. The soil should be thoroughly pulverized and the surface raked evenly, and all lumps and stones carefully removed. A liberal top-dressing of sand, saw-dust, leaf-mold, or fibrous muck will assist very materially in making the soil suitable for the reception of small and delicate seeds. In situations where

the ground is naturally wet, it may be advisable to raise the beds slightly above the walks, still they seldom look so well as when nearly or quite even. The practice of raising the beds six to twelve inches above the walks is an imported fashion, which originated in countries where water was more to be feared than drought. It might be beneficial in Holland, but as a general practice it is entirely out of place in America. The manner of sowing the seeds, whether in rows, clumps, or broadcast, will depend somewhat upon the variety, as well as the taste of the cultivators. Groups certainly look more natural than rows, and if these are made up of smaller groups of different colors, it will add very much to the general effect. The low-growing varieties should be placed on the outside, and the tallest in the center. The height of each variety is generally given in the seed catalogue, therefore there is no difficulty in arranging them at the time of sowing the seeds. In sowing the seeds, be careful and not cover them too deeply, as very few will admit of being buried more than a half inch; a quarter of an inch is sufficient, provided the surface of the soil is kept moist until the plants come up and have produced their second and third set of leaves. If cultivators would attend to their flower-beds, and see that they did not suffer for want of moisture for the first two or three weeks after the seed was sown, there would be far less complaint about the poor quality of seeds.

VARIETIES.

There are more than a thousand varieties of Annuals cultivated in our gardens, and to attempt a selection—of even

a moderately large list—would be a very difficult matter. In the first place, there is a great variety of taste; some people will go into ecstasies over a flower that another would not admit to his garden. Some admire a particular color, and in making a selection this will become the prominent feature. We should not find fault with others because they do not think as we do, nor believe them devoid of taste because theirs does not correspond with ours. All flowers were created for use and admiration. Some may be of a higher order than others, the same being true in regard to the tastes of their admirers.

Neither should we be selfish in these matters any more than in others, but we should cultivate flowers not altogether for our own individual gratification (although self has a right to the first place), but for the benefit of others. Liberality is not an expensive virtue in flower culture, because while we are enjoying their beauty, others may do the same without loss or inconvenience to ourselves. The stranger or neighbor, as he passes by, may derive pleasure from our garden. The bee that sips the honey from the mignonette injures not its fragrance, and the beautiful humming-bird that gathers the sweets of the lily does not harm its beauty; and various are the means in which we may bless others, and at the same time receive our coveted share.

To those who are unacquainted with the different species and varieties of Annuals, we would recommend them to leave the selection to some one of our professional florists; in their catalogues will be found special lists containing the most beautiful varieties, assorted, so as to give a suc-

cession of flowers throughout the season. By purchasing a collection, the seeds may be had much cheaper than by selecting particular varieties from the catalogue. The most popular and beautiful varieties are cultivated the most extensively, consequently the very best are often to be had the cheapest. We could not improve upon the special lists found in many flower-seed catalogues, and leave this subject by saying that the new double Zinnias, Portulacas, Asters, and Everlasting flowers are worthy of all the commendation they have received.

HERBACEOUS PERENNIAL PLANTS.

The plants commonly called Herbaceous Perennials belong to various families, genera, and species, and so great are their numbers, that to cultivate even a small proportion of them would require quite a large garden. Many of them are worthy of more attention than they have generally received, as they are of very easy culture, and their flowers are not excelled by any other class of plants. All that is required to insure success is a good rich soil, and an occasional transplanting to prevent them from becoming too much crowded. With some species the spring is the better time to transplant, with others the fall; but to designate the peculiar nature and habit of each would require a volume by itself, therefore we can only hint at the fact as we pass, and refer our readers to works which are particularly devoted to this subject. New varieties and species are constantly being discovered and introduced into our gardens, some of which are decided improvements upon the older and better known kinds, while others are

inferior. There appears to be no limit to the varieties which may be obtained from seed, consequently we advise every one, who has time to spare and land in which to plant them, to try and make improvements upon those we now possess.

It is not every plant that bears seeds, for our florists have reached the *ad finem* with some kinds, and produced flowers so double that the organs which are necessary for producing seeds are entirely wanting. But such plants are comparatively few, and there is still abundant room for progress with other equally beautiful kinds.

We meet the same difficulty when we endeavor to make a select catalogue of choice kinds from this class, as we have in the others. The varieties are so numerous that it is scarcely possible to say which are the best. The following are all good and hardy in most of the Northern States. The principal color, height of plant, and time of flowering are given. The time is for the latitude of New York city, which will vary in proportion as they are grown north or south of this latitude.

Achillea millefolium rubrum.—Deep red; one foot. June.

Achillea ptarmica pleno.—White; eight inches. July and August.

Aconitum versicolor.—Blue and white; three feet. July.

Arabis alpina.—Pure white; eight inches. April and May.

Asclepias tuberosa.—Orange scarlet; eighteen inches. July.

Aquilegia.—Many varieties of various colors, all beautiful and worthy of culture; two feet. June and July.

Ageratum cœlestinum.—Deep blue; one foot. September and October.

Arundo striata.—A coarse-growing plant, with beautiful striped leaves; six feet.

Astilbe Japonica.—Flowers, pure white, in long elegant spikes; much used for forcing in winter; one foot. June.

Bocconia cordata.—Very showy plant, with small, pinkish flowers; six to ten feet high. July and August.

Campanula Carpathica.—Flowers, blue; six inches. July and August.

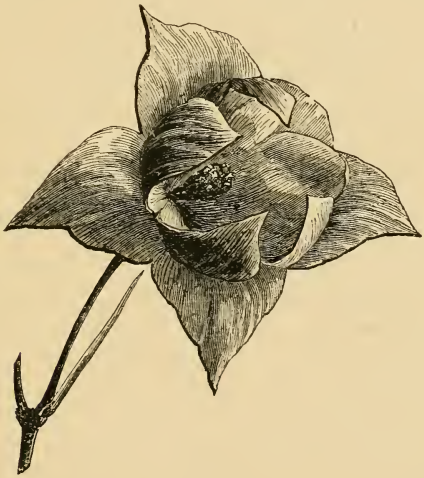

Fig. 10.

Campanula Carpathica alba.—White; six inches. July and August.

Campanula grandiflora cerulea—Blue; and *grandiflora alba*—White; are beautiful plants, with large showy flowers. July and August. Fig. 10 shows a flower with

two rows of petals instead of one, as usual; showing the first step toward a double flower.

Callirrhœ involucrata.—A beautiful trailing plant from the West. Flowers, bright crimson.

Convallaria majalis (Lily of the Valley). — A well-known plant that should have a place in every garden; six inches. May.

Chelone barbata.—Flowers, bright scarlet; three feet. July.

Digitalis.—Many varieties and species, most of which are very beautiful; three to six feet. July. The new species lately introduced under the name of D. ferruginea and lutea are more curious than beautiful.

Dodecathen Meadia.—Pale red or white, very elegant; eighteen inches. May.

Dicentra spectablis. — Old and well known, but none more beautiful; two feet. May. The new variety—D. spectablis alba, white—is a very delicate growing plant, and not equal to the first.

Delphinium formosum.—Deep blue; three feet. July and August.

Delphinium Hendersonii.—Very large blue; three feet. July and August.

Delphinium ranunculiflora. — Beautiful cobalt blue, very double, of extra fine form. July. See fig. 11, which shows a cluster of the flower natural size.

Epilobium spicatum. — Reddish purple; three feet. July.

Funkia alba odora (Dag Lily).—Large white flowers, very fragrant; two feet. July and August.

Funkia variegata.—Leaves beautifully variegated; flowers, pale blue; one foot. July.

Geranium alyssum.—Shaded violet; one foot. June.

Iberis perennis.—Flowers, pure white, in large clusters; plant evergreen; six inches. June.

Fig. 11.

Lathyrus grandiflorus.—Large flowering perennial pea, rose and white; plant of spreading habit. June to August.

Liatris spicata.—Flowers, purple, in very long, erect-growing spikes; four to six feet. July and August.

Liatris scarrosa.—Similar to the last, but flowers more dense and fringe-like.

Liatris globosa.—Flowers, purple—globular, in loose spikes; a new and rare species; three to four feet.

Lotus corniculatus.—A beautiful dwarf evergreen plant, with yellow, pea-shaped flowers; four inches. June.

Lupinus polyphyllus.—Plant with long spikes of flowers of various shades, from pure white to bluish purple; four feet. July.

Lychnis floscuculi.—Flowers, deep red, very double; one foot. May.

Lychnis Hageana splendens.—Flowers, deep scarlet; one foot; June.

Orebus verna.—Reddish purple; one to two feet. April and May.

Papaver Orientalis (Chinese Poppy).—Flowers, very large and brilliant, orange scarlet; three feet. June and July.

Papaver bracteatum.—Similar to the last, with brilliant red flowers. The perennial Poppy should be transplanted soon after it blooms, as it makes a second growth in autumn, and is difficult to make live if moved in spring.

Pentstemon ovatis. — Ovate-leaved, purple; eighteen inches. June and July.

Pentstemon grandiflora.—A native of Iowa and farther west. Flowers, very large, pale rose, and delicately spotted on the inside; three feet. June and July.

Phalangium liliago. — Flowers, small, pure white, in loose spikes; two feet. July.

Salvia argentea.—Flowers of no special beauty, but the foliage is very large, and covered with a fine silky-white pubescence.

Saxifraga crassifolia.—Deep pink, in large spikes; six to twelve inches. April. There are about a dozen varieties of the saxifrage cultivated in our gardens, all of which are very beautiful and worthy of more attention than they have heretofore received by the lovers of elegant plants.

Spiræa filapendula pleno.—Flowers in umbels, pure white, very double, resembling a small daisy; one foot. June.

Spiræa venusta.—Deep red, in loose spikes; three to four feet. June and July.

Veronica spicata.—Deep blue, in small compact spikes; one foot. July.

Veronica alba.—Pure white, in spikes; one foot. July.

Yucca filamentosa.—Elegant evergreen plant, producing large bell-shaped flowers; four to eight feet. July and August.

HARDY DECIDUOUS SHRUBS.

The following-named shrubs are all of moderate size, growing from one to six feet high; in some soils a few of them may exceed six feet, but this will very seldom occur. We have endeavored to name the best of each species, but by this we do not wish to be understood that there may not be other varieties equally as good. Some of those named are cultivated more for their beautiful foliage than for their flowers. A few are new and quite rare; still, all can be had in nurseries, where such plants are extensively cultivated.

Amygdalis pumila.—Dwarf double Almond; one with double white, another with double red flowers.

Azalea nudiflora.—Flowers, pink.

Azalea viscosa.—Flowers, white, fragrant.

Berberis purpurea.—Purple-leaved Barberry.

Calycanthus floridus—Sweet-scented shrub.

Cratægus oxycanthus.—Double Hawthorn. White and red.

Cydonia Japonica.—Japan Quince.

Chionanthus virginica.—White Fringe-tree; beautiful.

Clethra alniflora.—Flowers, white, very fragrant.

Cotoneaster affinis.—Nepaul Cotoneaster.

Cercis Japonica.—Japan Judas-tree.

Deutzia gracilis.—Dwarf; flowers, white.

Deutzia crenata pleno.—New double-flowering Deutzia.

Euonymus latifolia.—Broad-leaved Strawberry-tree.

Eochordia grandiflora.—A new and elegant shrub.

Forsythia suspensa.—Weeping Forsythia.

Halesia dipteria.—Silver-bell.

Hybiscus Syriacus, altheas.—Many colors.

Itea virginica.—Flowers, small, but pretty.

Lonicera Mangevilla.—Early-flowering Honeysuckle.

Prunus triloba.—Double Chinese Plum.

Philadelphus coronarius.—Sweet-scented Syringa.

Ribes sanguinea.—Red-flowering Currant.

Rhus cotinus.—Purple Fringe-tree.

Stuartia pentagynia.—Flowers, large, pure white.

Spiræa prunifolia pleno.—Early, double-flowering.

Spiræa callosa.—Red Chinese Spiræa.

Spiræa callosa alba.—White Chinese Spiræa.

Spiræa Reevesii.—Pure white, elegant.

Spiræa Reevesii pleno.—Double white.

Symphoricarpus racemosa.—Snowberry.

Symphoricarpus vulg. variegata.—Variegated-leaved.
Syringa Persica.—Persian Purple Lilac.
Syringa vulgaris alba.—Common White Lilac.
Syringa vulgaris Chas. X.—Deep violet-colored flowers.
Tamariskus Africanus.—African Tamarisk.
Viburnum opulus.—The Snowball shrub.
Viburnum plicatum.—Slender-branched Snowball shrub.
Weigela rosea.—Rose-colored Weigela.
Weigela Deboisiana.—Deep rose-colored.
Weigela Isolene.—Light rose and white.
Weigela amablis.—Elegant, pink flowers.
Weigela fol. variegata.—Variegated foliage.

THE DAHLIA.

It is scarcely three quarters of a century since the Dahlia was introduced into the gardens of Europe, and but little over forty years since the first double variety was produced. Yet within this time it has been so much improved, that no one unacquainted with its history would imagine that the superb varieties now in cultivation could have been produced from such an inferior-looking flower as that of the original species.

The rapidity with which the Dahlia has been brought to its present state of perfection is only equaled by its dissemination throughout almost the entire civilized world. There is scarcely a garden from the tropics to the more frozen regions of the north, where the gaudy Dahlia does not display its scentless flowers.

In variety of color it has no superior, in symmetry of form no equal, and yet our florists are still progressing,

and making, as it were, perfection more perfect. The object aimed at for many years was the production of large flowers, as well as perfect ones, and the results were that most of the varieties have become too large for cut-flowers or to be used in a bouquet.

Extremes in flower culture often prove beneficial in the end, because they are the precursors of the radical changes which we observe in various departments of Horticulture. Our florists appear to possess the faculty of producing whatever fashion or convenience may dictate, and with the Dahlia they have responded to the demands of both in giving us that charming class called the Liliputs. Perfection of form or diversity of color has not been lost by the change, for all that has been obtained with the larger flowers has been fully transmitted to the lesser.

It is not to be supposed that the introduction of these small varieties will drive the larger ones out of cultivation, because there are those who will admire both classes, while others will give one of them the preference. The Liliputs, however, are such gems of beauty, that they are likely to prove very popular with all classes of cultivators, and especially with those who did not admire the larger varieties. Fig. 12 shows a full-size flower of one of the Liliput Dahlias. These are not only much smaller than the common varieties, but the plants are comparatively less vigorous in growth, and seldom exceed three feet in height. They require the same treatment as the old varieties, and should be planted as early in spring as the weather will permit, so that the tubers will become mature before they are taken up in the fall. Immature

tubers are always more difficult to preserve through winter than those which are fully developed, therefore the more vigorous the growth, and the longer the time given for maturity, the better the results.

The professional florist usually propagates the Dahlia from cuttings, and by this method is able to produce a large number from one set of tubers, while the ordinary

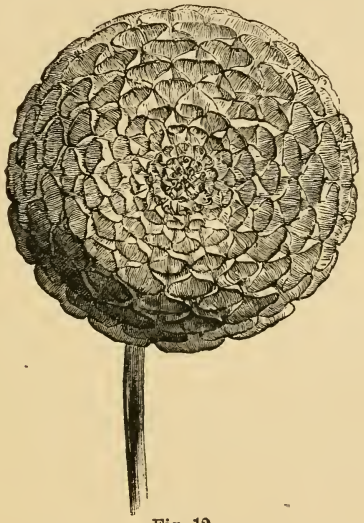

Fig. 12.

cultivator propagates them by dividing the stools and tubers, always leaving one or more buds on each section. If the tubers are forced into growth early in the spring, so that the cuttings become well rooted by the time the weather will permit of their being planted into the open ground, they will make good plants and produce fully developed tubers by autumn. But cuttings started late in

the season will seldom produce good tubers, consequently they will require great care to preserve them through winter.

Many people have poor success with the Dahlia, from the fact that they do not secure the earliest and best rooted plants; and we sometimes think that florists are considerably to blame in advising people to plant so late in the season as they often do. There are many ways recommended to preserve the tubers through the winter; the most successful method we have tried is to pack them in a box or barrel, and then pour over them very dry sand, and place all in a dry, warm room or cellar.

For names and description of new and excellent varieties of the Liliput Dahlias, as well as other varieties, we refer the reader to the catalogues of our florists.

Dahlia Imperialis.—This giant species of the Dahlia is attracting considerable attention, because of its stately habit and curiously-formed flowers. It grows to the height of ten feet, and produces an abundance of large, pure white, bell-shaped flowers. It was introduced from Europe the past season, and is now offered for sale by several of our florists and nurserymen.

THE CLEMATIS.

If there is one class of plants that calls forth the finer feelings of our nature more than another, it is those which from their structure seem dependent upon the more rugged kinds for their support. Among these we find that very numerous family of climbing plants called the Clematis. There are a few species which are not climbing; but as the majority of them are, we usually associate the name with

this section. Our common native species (C. virginica), with its beautiful clusters of white flowers, is well worthy of a place in the garden, where, we regret to say, it is seldom seen.

The more common European varieties, such as C. flammula and C. vitalba, have long been known in this country; but it was not until within a few years that the more showy and larger-flowering species and varieties have been cultivated to any considerable extent. The Clematis is a very widely distributed family, for there is scarcely any section of the globe that does not contribute one or more species. Siberia, China, Japan, Australia, East and West Indies, North and South America, all abound in beautiful species of the Clematis. From this abundance of material at our command, there is no reason why our gardens should not be adorned with flowers from early spring to late in autumn. Those species of Clematis which are indigenous to the tropics are not hardy in our more rigorous climate; still, those from the colder regions are abundantly sufficient to furnish all the variety required. Many new varieties are annually produced; and by selecting only the very best, we are enabled to make up even a very small collection that will contain the most valuable characteristics of the whole. To produce the best effect, the Clematis should always be planted in groups, placing a stake to each plant. The soil should be deep and moderately rich, one composed of equal parts of rich loam and leaf-mold will be found to answer very well for these plants.

In our northern climate it is best to protect all of the varieties in winter, as they will bloom much more abun-

dantly than if left exposed. A simple and very efficient method is as follows: In the fall, just before the ground freezes, take the plants down and coil them around the base of the stakes, then throw on three or four inches in depth of coarse litter, such as straw or leaves, and over the whole place a few shovelsful of soil. The plants should be uncovered in the spring, soon after the frost is entirely out of the ground. It is but a few hours' work to protect in this manner a large number of plants, and the increase in the number of flowers will amply repay one for the trouble.

PROPAGATION.

To procure new varieties, as well as to multiply particular species, we resort to seedlings. The seeds should be sown soon after they are ripe, either in boxes of soil or in the open ground. As a general thing they will not germinate until the second season, therefore it is a good plan to mix them in boxes of sand, and bury in some out-of-the-way place until the next autumn, then sow where they are wanted. The next spring they will usually come up and grow rapidly. Protect the seedling the same as old plants, and transplant in spring if they are likely to be too much crowded by remaining in the seed bed.

PROPAGATING BY LAYERS.

Select a strong and vigorous shoot at the time it is making its most rapid growth in summer; bend it down and cover a portion of the lower end with soil, over which place mulch; and if the weather should prove dry, give the soil occasionally a good soaking with water. These layers

will usually be well rooted by fall, at which time they may be separated from the parent plant. Another method is to select young growing shoots, and make a small notch just below each bud; then lay the branch in a very shallow trench, covering it with fine moss, but no soil; keep the moss well watered until new shoots have pushed from each bud and roots are formed; then a little soil may be drawn over the main branch. Nearly every bud will thus make a plant; but as they will be generally more feeble than those produced by the first method, it is best to take them up and put in pots or boxes and placed in the greenhouse or cellar during winter. Other methods of propagation are often resorted to, such as dividing the old stools, growing from green cuttings under glass, etc.; but the above are the more common ways.

VARIETIES.

The following are some of the most beautiful varieties among the many cultivated in this country:

Clematis flammula.—Small, white flowers, but very fragrant.

C. patens.—Very large, azure blue.

C. lanuginosa.—Very large blush lilac.

C. Amelia.—Large, pale lilac.

C. Helena.—Large, greenish white. See fig. 13, which is the form of this variety.

C. Hendersonii.—Large, dark blue.

C. Sophia.—Large, pale blue with violet border.

C. azurea grandiflora.—Large, blue.

C. montana.—Large, pure white, purple center.

C. florida.—Large, pure white.

C. florida pleno.—Double white. See fig. 14, which represents a flower of natural size.

C. Sieboldii.—White, with red center.

Fig. 13.

C. Sieboldii pleno.—Double flowers.

C. viticella.—Medium size, blue.

C. viticella pleno.—Double blue.

C. monstrosum pleno.—Large double, greenish white.

C. Laura.—Large yellowish white.

C. cerulea odorata.—Fragrant blue.

C. vinosum.—Large, bluish purple or violet, edged with white; one of the most showy.

Fig. 14.

CURIOUS-LEAVED PLANTS.

The leaves of all plants are curious and wonderful structures, that should command greater attention and a more

intimate acquaintance than is usually bestowed upon them. With the general forms of the leaves of each great family we become so familiar, that it requires something strikingly different from the ordinary type to attract our especial attention. When such variations occur, we instinctively pause and exclaim How curious! though the object may not be more beautiful than the common form; still, its rarity adds to its value, and we appreciate it in proportion to its deviation from the ordinary forms of other members of the same family.

These peculiar freaks of nature are becoming quite common in nearly every family of cultivated plants. They are also quite popular, especially those classed as ornamental plants; and there has been such a demand for these during the last few years, that it is to be feared many very inferior varieties have been brought forward. These peculiar variations in leaf assist very materially in affording variety of color to our groups of trees, as well as striking contrasts between individuals of the same species. Nothing will add more to the general appearance of a place than the introduction of a few of the curious-leaved trees among the ordinary kinds.

Among the well-known curious-leaved hardy trees we name the following as worthy of cultivation:

Alder.—Cut-leaved, very handsome. Fig. 15 shows two leaves one quarter natural size.

Beech.—Fern-leaved, leaves long and slender.

Beech.—Cut-leaved, very neat and pretty.

Beech.—Purple-leaved, one of the most valuable.

Birch.—Cut-leaved, weeping.

Elm.—Purple-leaved, leaves small.

Horse-chestnut.—Cut-leaved, leaves deeply cut.

Hornbeam (Carpinus).—Silver variegated leaved.

Linden or *Basswood.*—Cut-leaved, very fine.

Linden or *Basswood.*—White-leaved, handsome.

Maple.—Purple-leaved, leaves large.

Maple.—Three colored, white, red, and green.

Maple.—Eagle's claw or cut-leaved.

Maple.—Silver-striped.

Maple Colchicum rubrum.—Young leaves deep red.

Fig. 15.

Mountain Ash.—Oak-leaved, very curious.

Mountain Ash.—Gold-striped.

Salisburia variegata.—Beautiful, but should be grafted on strong stocks of the plain-leaved variety.

Willow.—Rosemary-leaved, curious and beautiful.

Willow, caprea tricolor.—Curious.

Willow, annularis.—Ring-leaved, weeping.

CURIOUS-LEAVED SHRUBS.

Acuba Japonica.—Gold-blotched, tender.

Althea.—Silver-striped.

Fig. 16.

Barberry.—Variegated-leaved.

Barberry.—Purple-leaved.

Dogwood.—Silver-striped.

Elder.—Golden variegated.

Snowberry.—Variegated-leaved, berries red.

Snowball.—Variegated-leaved.

Sumac.—Cut-leaved, very handsome and showy. See fig. 16, which shows the form of leaf, but much reduced in size.

Weigela rosea variegata.—Very showy.

WEEPING TREES.

The following are beautiful weeping trees that should be better known throughout the country than they are at the present time.

Weeping Ash—Four varieties.—Rather coarse-growing trees, yet worthy of cultivation.

Weeping Beech.—One of the most beautiful weeping trees we possess.

Weeping Birch.—Cut-leaved, very graceful.

Weeping Cherry.—Light and graceful, a small tree.

Weeping Elm.—There are several varieties, all of which are handsome.

Weeping Mountain Ash.—A beautiful tree.

Weeping Thorns.—Some four or five varieties, all handsome small trees.

Willow.—The old variety is a well-known large tree; but the new American and Kilmarnock Willows are small trees, suitable to gardens of moderate size.

ORNAMENTAL-LEAVED PLANTS.

Among the hundred thousands of flowering plants already known, one would suppose that we could find enough to make our gardens sufficiently beautiful to satisfy the most fastidious taste or fertile imagination. But this appears not to be the case, for our florists are not content with flowers alone, but strive to introduce and produce plants with foliage equal in color to the most gorgeous flower. Success seems to have crowned their labors, and we now have many plants the foliage of which furnishes our gardens with an array of beauty such as no pen can describe.

With the new and beautiful foliage plants a garden can be made extremely charming, even if no showy flowers are cultivated. Every one who has for a moment looked upon our native forests must have observed the varied and beautiful colors of their autumn leaves. The Hickories and Maples, with their golden tints; the Liquidamber and Nyssa affording every shade, from a bright red to the deepest purple; while the Virginia Creeper, with its fiery scarlet leaves turned around some giant stem, like a huge serpent embracing its victim, gives a brilliancy to the scene which art may imitate but never equal.

In the forest we have the extensive panorama, while in the garden we endeavor to produce the small easel picture, with its delicate tints of light and shade, which will bear a close acquaintance without losing any of its real beauties.

In making selections of ornamental-leaved plants, one should be careful not to over-do the matter, but introduce just enough to make the picture complete—not too many of one color, so that the place, to use a common phrase, will look stunning. The tallest varieties should form the background, or, when groups are formed, be placed in the center. Plain green-leaved plants should also be intermingled, because without them it is scarcely possible to produce a pleasing effect. The native ferns from our woods are unexcelled in beauty of foliage; their fine, feathery leaves intermingled with the coarser varieties of plants form a beautiful contrast, without appearing to crowd or in any way interfere with other kinds. Most of our native ferns may be successfully grown in the open garden, yet a partial shade, such as may readily be given them when grouping with other plants, is beneficial. This greatly neglected family of plants is deserving of more attention than we have been in the habit of giving them.

A large proportion of the ornamental-leaved plants commonly used for summer decorations of gardens are tender and will not bear the least frost, consequently they must be started in the green-house, or be kept there during winter, and planted out in summer. Such plants are propagated in large quantities by our florists, from whom they can be obtained very cheaply. There are, however, some kinds which can be grown from seeds; others are hardy, and the roots may remain in the open ground during winter; while a few may be taken up and put away in the cellar in boxes of sand, just as we keep Dahlias.

In the following list we have endeavored to name some

of the most desirable, all of which can be had of our florists and nurserymen:

Achyranthus Verschaffeltii. — Leaves and stems, pink violet shaded with crimson; grows very compact, and eighteen inches high; tender.

Antirrhinum (Silver-belt Snapdragon).—Leaves, green, with white border; one and a half to two feet high; very compact; flowers, crimson and white; nearly hardy, requiring a slight protection.

Ageratum variegata.—Leaves, finely variegated, with yellow and green, shaded with crimson; grows about one foot high; tender.

Arundo donax striata.—Leaves, long, slender, distinctly striped with white and green; grows six to eight feet high; very showy and perfectly hardy.

Bocconia cordata.—Leaves, large, irregular, heart-shape, pale green; grows six to eight feet high; crowned by small pink flowers; hardy.

Bocconia Japonica.—A new variety from Japan with very large deeply lobed leaves, pale green above and of a glaucous tint underneath. It grows eight to ten feet high, with very long spikes of flowers. Not fully tested yet as to its hardiness, but probably will endure our winters with very slight protection.

Canna, or *Indian Shot Plant.*—There are several varieties of the Canna, all of which are very ornamental, as their leaves are very large and showy. They attain a height of from three to six feet. C. Nigricans has large, deep red leaves; C. Anneii, deep green; C. Potseana, red and orange; C. Warszewiczii, reddish, bronze-colored foli-

age; C. Zebrina, similar to the last, but the marking more distinct; C. Napalensis, rather small foliage, but remarkably fine flowers. Fig. 17 shows a plant of Canna as it

Fig. 17.

appears when in bloom. The Cannas succeed well in almost any good rich soil, and the roots are easily kept through the winter, as the Dahlia.

Caladiums.—Quite an extensive class of plants, with

remarkably fine foliage. They require considerable moisture and warm weather to insure a fine growth. The old C. esculentum (fig. 18) is one of the most hardy and vigorous, and produces leaves of enormous size. Some of them may with care be kept through the winter in the cellar, but the green-house is the most suitable place.

Fig. 18.

Coleus Verschaffeltii.—This is one of the most beautiful plants that has been introduced for many years. The leaves are a deep violet purple, with a soft velvety surface. It grows three or four feet high if not checked; but to produce handsome stocky plants, the leading shoots should be checked when about a foot high; very tender; propagated from cuttings. There are also several other varieties which are very beautiful. C. atropurpureus has

glossy, blackish purple leaves, and C. concolor pictus, green and brown foliage.

Centaurea candidissima.—A small, compact-growing plant; leaves, downy white, affording a striking contrast with the dark purple leaves of the Coleus and similar varieties.

Dahlia variegata.—A variety of the common Dahlia, with handsome variegated leaves.

Fuchsia meteor.—Leaves, golden yellow shaded with bronze, the ends of the shoots crimson; tender.

Geraniums.—Great improvements have been made in the last few years in variegated-leaved Geraniums. In addition to their ornamental leaves their flowers are extremely beautiful. They are all tender, but may be preserved through the winter in any dry, warm room by placing the roots in soil, cutting away a greater proportion of the stems when taken up in autumn. The following are some of the best:

Alma.—Leaves, white margined; flowers, scarlet.

Bijou.—Silver-edged leaves; flowers, scarlet crimson.

Cloth of Gold.—Leaves, golden yellow; flowers, deep scarlet.

Fairy Nymph.—Leaves, silver white; flowers, scarlet.

Mountain of Snow.—Leaves with a pure white margin; flowers scarlet.

Silver Chain.—Leaves, silver-edged; flowers, rose color.

Hydrangea variegata.—Leaves striped and blotched with white, very showy; requires protection in winter. There is another variety with gold-striped leaves, but the markings are not very constant.

Lonicera aurea reticulata. — A variety of the Japan Honeysuckle with beautiful yellow blotched foliage; climbing or trailing plant; quite hardy.

Maize, or *Japan Corn.*—The plant has the habit of our common corn, with leaves distinctly striped with white; a

Fig. 19.

very showy and elegant addition to our list of variegated plants; propagated from seed.

Salvia argentea.—Leaves, very large, covered with a silver-white pubescence; the largest leaves remain close to

the ground; the flower spikes rise one to two feet high; the flowers are a pale pink color, of no great beauty; hardy.

Sedum carneum variegatum. — A very compact low-growing plant with small, beautiful variegated leaves; suitable for the outside of groups; tender.

Wigandia caracasan (see fig. 19).—This is a noble-looking plant from South America. It grows six to eight feet high, with dark-green leaves, two to three feet long and eighteen inches broad. The plant is of very easy culture, and may be propagated from seed or from dividing the roots. It requires protection in winter, and should be taken up in the fall, the stem cut off, and the root put away in soil, either in a warm room or cellar.

VIII.

ORNAMENTAL GARDENING.

There is a certain amount of taste required in laying out any garden, however small in extent. The owner may have never read a book on landscape gardening, or know anything about the scientific rules usually employed; still, if he has ever been ten miles from home, he must be aware of the fact, that some very expensive and pretentious residences look very inferior, for some cause which he may not be able to explain. There are some very good-looking people, naturally, who never look well when dressed even in the finest cloth. We may not be able to say why, or what particular article of dress it is which detracts from the whole, but we simply know, to use a common phrase, they look dowdy. The same thing is apparent in many a city or country garden. There will be a fine house with appropriate outbuildings, but the general appearance of the place is inharmonious. The walks are straight where they ought to have been curved; or there is a right angle where a slight rounding off of a corner would have given a more pleasing effect. Similar defects are not only noticeable in large places, but in those more humble and less pretentious. It is among the rich that we look for the best display of good taste, for they have the means of obtaining as well as of putting it to a proper use.

Still, we are sensibly aware that in this country many

become suddenly rich, and if they originally possessed a boorish taste, they usually carry it with them to their new position. This is one reason why we see so many costly dwellings in the suburbs of our large cities and villages with such meager surroundings. The proprietors probably engaged a competent architect to furnish designs for his buildings and see that they were executed; but for his walks, roads, and the general arrangement of his garden and lawn, he depended upon his own abilities and taste, or that of some common farm laborers, and the result is just what might be expected, an unbecoming medley of absurdities. Whereas, had the proprietor instructed his architect to give him a less expensive house, and expended the balance in obtaining a design from some landscape gardener for his grounds, the stranger, as he passed, might have supposed him a man of taste and a gentleman by birth and education; instead of this, every one who looks upon these grounds (unless it be those of the same capacity as himself) can not refrain from thinking, if he does not so express himself, that the proprietor made his money either by shoddy or petroleum.

We can not give a better illustration of our idea of poor taste, or no taste, as displayed in hundreds of what are sometimes called elegant places, than to describe one not a hundred miles from New York, and located in a fashionable neighborhood.

The house is quite large and of modern style—probably cost twenty-five thousand dollars. It is painted white, with green blinds; elegant in all its proportions from observatory to foundation, and doubtless designed by a first-class archi-

tect. The painting of the house, a blazing white, we do not suppose was part of his design, consequently we give the proprietor credit for this mistake. The outbuildings all harmonize in their general appearance with the prominent feature of the place, which is generally supposed to be the dwelling. But the garden, walks, drives, and lawn, what shall we say of them? The soil where the roads and walks are laid has been taken out to the depth of one foot or more, and the place filled with stone, and these covered with gravel, consequently their construction has been very thorough, as well as an expensive operation. The lawn has been all trenched and highly manured, and the grass is luxuriant; so far this is all correct and just as it should be, but the arrangement of them has destroyed all the pleasing effect that they were designed to produce.

The house stands upon a high, prominent knoll, about twenty rods from the main road, and the principal walk is laid in a straight line from the front door, which is in the center of the house, to the road. Along this walk American arborvitæs are planted, about ten feet apart; these are now about fifteen feet high, and as compact and straight as could be wished. No row of Lombardy poplars, or platoon of soldiers with fixed bayonets, ever looked less inviting than this walk with its long line of arborvitæs. In passing from the gate to the house along the walk, we are reminded of the old Indian custom of punishing their prisoners, by allowing them to run the gauntlet for their lives, and we instinctively dodge as we pass each tree, expecting a war-club or lash to fall upon our backs. If the owner did not possess sufficient land to make his walks differently,

then we might excuse him; but he has a wide front on the road and acres of lawn, upon which, however, he has planted no groups of trees, although the place abounds with fine specimens, all of which are planted along the borders of straight walks, roads, or by the side of the fences. Straight walks are seldom admissible, even in the smallest places, especially where anything like ornamentation of grounds is attempted; but a curved walk or road, with no apparent reason for making it so, is equally objectionable. The object should be to make it appear that all bends or variations from straight lines were compulsory, and that we pass around a group of trees, a clump of shrubs, a rock, or other obstacle to our progress. If such do not exist, then we should erect them, and place such in every curve, and occasionally along the whole line of the walk. We often see serpentine walks and roads which would be really an improvement to the grounds in which they are, provided a cause for their winding course were shown.

There was a time when the more a man departed from nature in arranging his garden, the more skillful he was considered. In those times trees and shrubs were trimmed into all kinds of fantastic shapes, and birds and animals were represented, instead of leaving them to grow in their natural and more beautiful form. At that period the main walks were laid out straight, with which the smaller were connected at right angles; flower beds were made square or circular; no graceful outline or imitation of nature was attempted. But it is supposed we have progressed in the art of ornamental gardening, and at the present day we choose

nature as our model as well as our subject. We clip off a rough corner here and fill up a depression there, to make our gardens look natural. It is not advisable to apply the idea of curved lines to such an extent that will produce deformity, for in that case our gardens would be subjects of criticism, and we might feel the force of Sir Walter Scott's remarks when speaking of the fashionable style of his time:

"Their plantations, instead of presenting the regular or rectilinear plan, exhibit nothing but a number of broken lines, interrupted circles, and salient angles, which are as much at variance with Euclid as with Nature. In cases of enormity they have been made to assume the form of pincushions, of hatchets, of penny tarts, and of breeches displayed at old clothesmen's doors. In all these they tell you they are imitating nature."

Man has destroyed the forest which originally stood upon the spot where we build our dwellings; we set to work to replace it; and as straight rows and equal distances were not found in the original, consequently we do not employ them in the artificial. If we walk or drive into any natural wood we are compelled to deviate from a direct line to avoid a tree, rock, shrub, rise, or depression, and we construct our artificial roads with the same imaginary obstruction in the way. In preparing and grading the place for a house, it is often a very easy matter to so arrange the general conformation of the ground that the walks and roads can be laid in graceful curves, and the appearances, when completed, will be such that one can not see that it were possible to have placed them in any

other position. In fig. 20 is shown one of the walks at Woodside. The site which was selected for the house was a steep hillside from which several feet of soil had to be graded off to obtain a level spot for the building. In doing this it would have been just as easy to have taken off enough at B so as to have allowed the walk to have been on a straight line from the gate to the door at the side. But

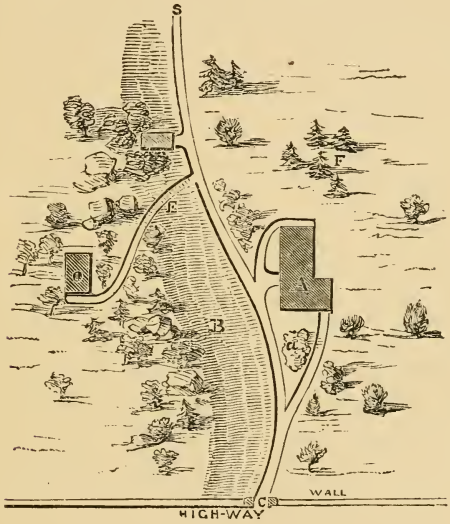

Fig. 20.

at B, and to the left, there is a high bank covered with trees and rocks, and this bank was allowed to project at that point three or four feet farther than at a point near the house. This bank runs along past the side of the house, as shown. When the grading was finished, the

bank where it had been disturbed was sodded over so as to keep the rain from washing it down, and also to make it appear like a natural grassy slope. The walk was then laid along close to this bank, following it until near the house then passing on to the barn some three hundred feet farther. Side walks branch off from the main one wherever required. When these walks were completed, there did not appear to be any other place where it would have been possible for them to have been laid without meeting some obstructions.

a—A group of kalmias.

B—Grassy bank and large rocks.

c—Rhododendrons and ornamental deciduous shrubs.

D—Ice-house cut into the rocks and shaded with large native trees.

E—Winding path up the rocks to office.

F—Group of evergreens to conceal the rear of house.

The main drive or carriage road is not shown in sketch; it starts some fifty feet from the small gate, and passes, with a long easy curve, around on the right of the house close to the rear corner, and avoiding the groups of trees planted near enough to it to appear like obstacles which prevented it running in a direct line.

In fig. 21 we show an imaginary example of serpentine walk without any apparent reason for it; *a* is the dwelling-house, and *b* a rustic summer-house on the lawn. The idea in the gardener or designer would seem to have been a serpentine walk; but as there are no obstacles, either artificial or natural, the walk is out of place. Besides this, the curves are too great, and appear tedious because unneces-

sary. If there had been trees and rocks in the way, so that these windings were for the purpose of avoiding them, then it would have been a very natural and beautiful walk.

We do not propose to discuss the principles of landscape gardening, or lay down rules which may be implicitly followed, but we throw out these hints and suggestions in

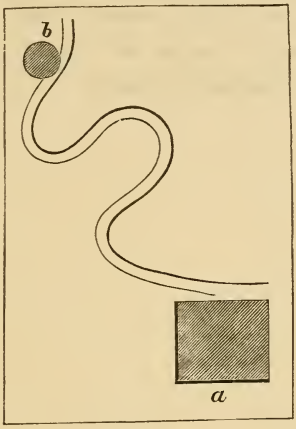

Fig. 21.

hope that our readers will strive to avoid some of the great errors as well as bad taste so often found in gardens throughout the country.

We often see very small places which show a refined taste as well as a thoroughly scientific arrangement, while in others there is a great display of wealth, but all to no purpose, except to show how much may be expended to produce such poor results. One of the most frequent errors observed in city gardens (and often in the country) is that of dividing the garden into innumerable small beds and of all shapes, each of which is surrounded with dwarf-box

or some similar plant as an edging. It reminds one of the days when no garden was thought complete without its labyrinth. No one will object to a border being placed around a flower bed, but when it becomes the most prominent feature, it is of doubtful advantage. A flower bed cut from a green grass plot is the best position possible; for it reminds us of the clumps of wild flowers that we meet in rambling through the meadows and along the grassy banks of beautiful streams.

IX.

NEW HARDY SHRUBS AND TREES.

The following list comprises most of the new species and varieties described and noticed in the European Horticultural and Botanical journals in 1866. Very few of them have yet been introduced into the gardens of this country, but no doubt many of them will be imported during the present year.

Abies numidica.—A new hardy evergreen tree, supposed to be a variety of the Abies Pinsapo (Pinsapo Pine). It was found on Mount Tababor, Algeria. Described in *Revue Horticole.*

Acer platanoides cucullatum.—A variety of the Sycamore Maple, the leaves of which are cucullate-flabella form, convex above and concave below, with elongated teeth. Originated in France.—*Revue Horticole.*

Alnus glutinosa aurea.—A fine ornamental variety of the Alder, with broad, rounded, plicate leaves, but instead of the ordinary green they are of a rich golden color. From Belgium.

Broussonetia papyrifera navicularis.—A curious variety of the common Paper Mulberry tree, with leaves concave in shape like a small boat. Originated in France.—*Revue Horticole*, 1866.

Broussonetia dissecta nova.—Another variety of the

common Paper Mulberry, resembling the B. dissecta, but more upright in growth.—*Revue Horticole*, 1866.

Cerasus Sieboldii.—A new variety of Cherry, described as a vigorous, hardy shrub or small tree, with deciduous, elliptic-acuminate, serrate leaves, and large semi-double blush-white flowers, becoming delicate rose in the center. From Japan.—*Revue Horticole.*

Cratægus oxycantha Gumpperi bicolor.—A pretty variety of the Hawthorn, in which the blossoms are white in the center with a broad border of cherry rose. Originated in Germany. Figured in *Flore des Serres.*

Cupressus cornuta.—A vigorous, bushy evergreen shrub, with assurgent branches, clothed with scale-like leaves and bearing monstrous irregularly-shaped cones, at the summit of which are two to four mucronate horns. If this variety should prove to be as hardy with us as the C. Lowsoniana, it will add one more valuable evergreen to our gardens.

Daphne Genkwa.—A beautiful deciduous half-hardy or hardy shrub, with opposite lanceolate leaves and a profusion of flowers in fascicles of from three to seven, and of a bluish lilac color. From Japan. Figured in the *Gartenflora.*

Daphne Jezoënis.—A much-branched hardy shrub, growing about two feet high, with obovate-oblong leaves and fragrant yellow flowers borne with the leaves. From Japan. Figured in *Gartenflora.*

Fremontia Californica.—A singular and beautiful hardy shrub, with cordate-lobed leaves and large yellow flowers. Figured in the *Botanical Magazine*, plate 5591. If any of our nurserymen have this native plant in their posses-

sion, we would be pleased to have them inform us of the fact.

Hydrangea pameulata grandiflora.—A perfectly hardy shrub, growing about eight feet high and bearing enormous panicles of flowers, of which the sterile completely cover those which are fertile; these sterile flowers are large, four-petaloid, yellowish green, changing to pure white, and finally becoming tinted with rose. From Japan, introduced by M. Siebold. If this Hydrangea is what it is represented, it will be well worthy of our attention.

Kerria Japonica variegata.—A variety of the common Japan Globe Flower, with variegated leaves and single yellow flowers. Figured in the *Botanical Magazine.* It has already been introduced into this country.

Philadelphus Keteleerii.—A handsome bushy shrub with oval acuminate leaves and pure white semi-double flowers, very fragrant. It is a seedling raised by M. Carriere from P. coronarius—our common Syringa or Mock Orange. *Revue Horticole.* This has been imported, and is in several collections at the present time.

Philadelphus tomentosus.—A vigorous, hardy, deciduous shrub, with large, strong-nerved leaves, very downy beneath, and very large and numerous white sweet-scented flowers, about two and a half inches in diameter. A French variety. *Revue Horticole.* This has also been introduced into our gardens.

Platycrater arguta.—A hardy shrub of the Hydrangea family, with elliptic-lanceolate leaves and loose corymbs of small unattractive flowers. From Japan.—*Gartenflora.*

Populus angulata tortuosa.—A delicate shrub with

twisted stem, angular twisted flexuose branches, and long-stalked leaves. A French variety, raised by M. Barthere. *Revue Horticole.*

Populus nivea Salomonii.—A hardy tree with divaricate branches, slender and pendent twigs, the leaves subrhomboidal or irregularly cordiform, shining as if varnished on the upper surface, and clothed with thick, snow-white tomentum beneath. From Algiers.—*Revue Horticole.*

Rhododendron.—A fine hardy evergreen shrub, introduced into England from China in 1859, but did not bloom until last season. It has thick, oblong, acute leaves and rather lax heads of pale rosy flowers, deeper toward the margins. It is said to be allied to R. Griffithiana.

Rhododendron Metternichii.—A hardy shrub with flowers of a beautiful rose color. From the high mountains of Japan. Figured in *L'Illust. Hort.*, France.

Rhodotypus Kerrioides.—A pretty hardy shrub with oblong-ovate serrated leaves, and large, white solitary flowers at the ends of the branches. From Japan. Figured in *Gartenflora.*

Rhus Simonii (Japan Sumac).—A hardy, erect-growing shrub with ferruginous red bark on the young shoots and impari-pinnate leaves, eight to ten inches long, the leaflets sessile and of a deep shiny green. Japan.—*Revue Horticole.*

Spiræa amurensis. — A hardy deciduous shrub with subcordate orbiculate three to five lobed leaves, and corymbs of rather large white flowers, the pedicels and calyces of which are clothed with stellate down. From the Amoor River, in Asia. Figured in *Gartenflora.*

Spiræa aquilegifolia Von Houteii.—A vigorous-growing shrub with broadly elliptic leaves, tapered to the base, and white, agreeable-scented flowers, forming elegant corymbs at the tips of the twigs. Originated in France, by M. Billiard. Figured in *Revue Horticole.*

Weigela purpurata.—A new variety of our common Weigela, raised by M. A. Verschaffelt. Flowers, a fine red changing to pale rose.

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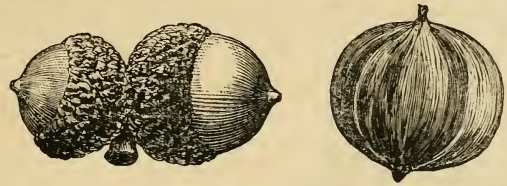

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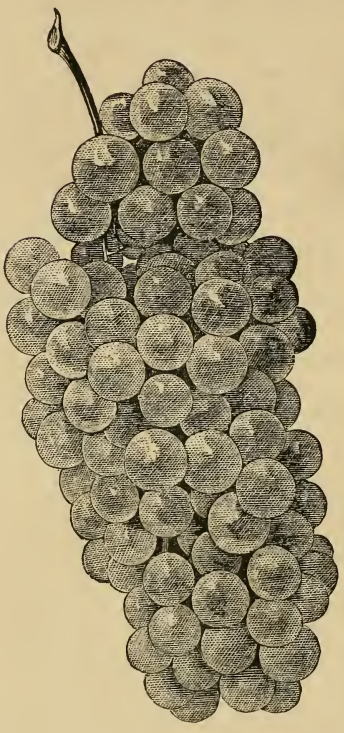

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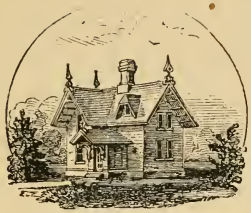

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